THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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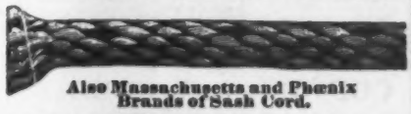
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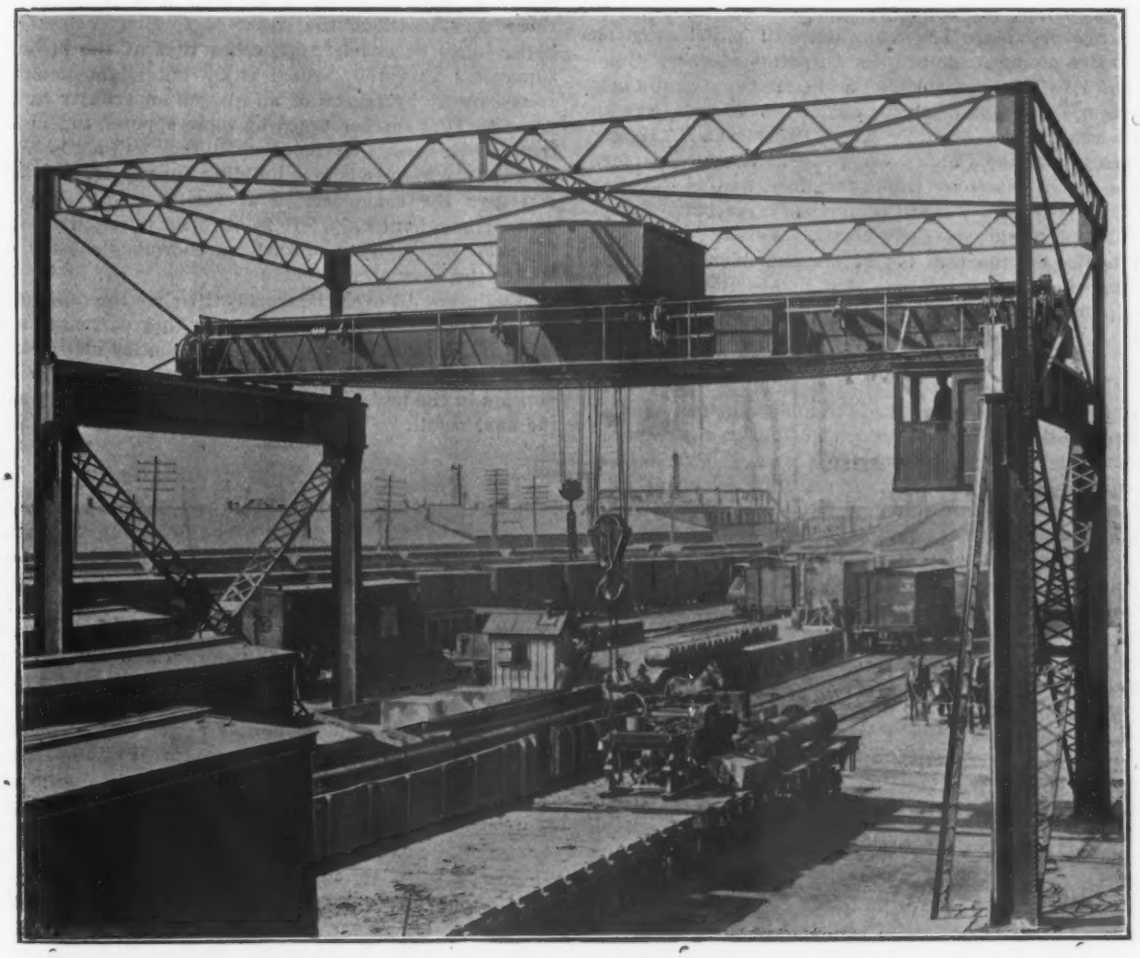
THE IRON AGE

THURSDAY, NOVEMBER 19, 1903.

An Electric Traveling Crane in Railroad Yards.

An installation which is of an unusual, if not quite unique, nature has been made by the Pennsylvania Railroad in the Buffalo, N. Y., freight yards of its Buffalo & Allegheny Valley Division. As shown in the illustration, a traveling crane is mounted upon a short runway, spanning three tracks and as many wagonways. The crane is a 40-ton, four-motor, Niles machine, of 48 feet span, the runway being 40 feet long and of a hight to give 24 feet total lift for the crane hooks. This length of runway is sufficient to give the hooks access to all portions of a car length, the spanning of three tracks thus providing for the loading or unloading of three cars without resetting. If at any time it shall be desirable to increase the area of usefulness of the crane, the runways may be lengthened by the addition of new sections. The hight of lift is notable as enabling the loaded hook to clear the tops of box cars or other obstructions while performing the functions of its regular service of loading and unloading. The runway is of substantial construction, consisting of four built-up columns carrying rail girders of riveted plate and channel construction, laterally braced by overhead struts and chords of lattice work.



40-TON NILES ELECTRIC CRANE IN PENNSYLVANIA RAILROAD YARDS, BUFFALO, N. Y.

The crane bridge consists of two heavy curved girders, of box section. It is driven longitudinally on the runway by a 30 horse-power inclosed motor, located on the front girder, and geared to the truck wheels on either side. The motion is controlled by a foot brake in the operator's cage, acting directly upon the armature shaft of the motor. A foot bridge, with the customary guard rail, is provided the entire length of the bridge span. The trucks are of the built up type, securely and rigidly fastened to the girders. The wheels are heavy, of cast steel, double flanged, and with treads accurately finished to equal diameters.

The trolley is of the standard type used on overhead cranes, consisting of heavy side frames, securely bolted together, and kept in alignment by a separator. In addition to the main hook a quick running auxiliary hoist of 5 tons capacity is provided for rapid and efficient handling of light loads. This auxiliary is most used and does, therefore, the greater portion of the work of the crane. In this sense it would probably be more proper to speak of the lighter hoist on all such cranes as the main hook, the heavy hoist being really the auxiliary in point of usefulness. Both the hoists on this crane are provided with mechanical and electric brakes, as well as circuit breakers and limit switches, to prevent damage from overwinding, &c. All gearing is cut from the solid and runs in baths of oil, giving the whole mechanism an unusually high mechanical efficiency. The trolley, operator's cage and, as already noted, the bridge drive motor, are inclosed, so as to afford proper protection from the weather.

Following are the speeds for the various movements: Main hook, lifting full load, 9 feet per minute; light, 18 feet per minute. Auxiliary hook, lifting full load, 50 feet per minute; light, 100 feet per minute. Trolley travel across bridge, with full load, 80 feet per minute; light,

100 feet per minute. Bridge speed along runway, with full load, 225 feet per minute; light, 275 feet per minute. The main hook is actuated by a 30 horse-power motor, the auxiliary hook by one of 21 horse-power, the trolley by a 7½ horse-power machine, and the bridge, as already stated, by a motor of 30 horse-power. Current is supplied at 220 volts, direct.

It may readily be appreciated that an equipment of this character must have a much greater capacity than the pillar or swinging crane usually installed in freight yards where any provision of the sort is made. The complete installation, as shown in the engraving, was built and erected by the crane department of the Niles-Bement-Pond Company, Philadelphia, Pa.

Twenty-five Knot Ships.

Time was when any steamship company could add one or more vessels to its fleet without exciting comment or animadversion of any kind, but in the case of the Cunard Company this fact does not hold good, for it is of public knowledge that the announcement of their intention to build two new ships has been, and still is, discussed on both sides of the Atlantic from all points of view. Commercial rivalry is responsible for the inception of the new vessels without doubt, for the advent of the new German steamers "Deutschland," "Kron Prinz" and "Kaiser Wilhelm" put the Cunard Company in the second place on the sea in passenger traffic certainly, and as this was not to be borne, the Cunard people had no recourse except an attempt to surpass their rivals. We say "attempt" designedly, for the task before English naval architects and marine engineers is one that makes the boldest of them pause and consider well before the keels are actually laid.

It is said that if an engineer has money enough he can accomplish anything, but this must be taken with limitations. If the scheme he is to undertake has reached its possibilities as regards present knowledge the engineer is handicapped, and may have to examine new methods to attain his ends, or, in other words, experiment to a certain extent. The result may be anything, and where enormous expenditure is at stake it is easy to see why those responsible are cautious. In the case of vessels to make a sea speed of 25 knots per hour there are no precedents which are well enough established to rely upon. It is asserted by those whose experience warrants them in making such an assertion that the limit of the propelling power now in use has been reached. Be this as it may, it has certainly attained a stage where those who have employed it at ordinary speeds are very chary of using it for much greater velocities, and those concerned have to wait for the verdict of professional men upon whom they depend to realize their undertaking.

As has been intimated in the foregoing lines, the chief trouble, or delay, is caused by the fact that the enormous power required to develop 25 knots per hour—72,000 horse-power—is quite beyond previous experience with the marine engine of the period, but precisely this objection was urged when the speed possible 25 years ago—14 knots—was obtained upon what we now consider very low powers and very low pressures—say, 6000 horse-power and 75 pounds of steam. It was with fear and trembling (if we may use such an expression in connection with the noble science of steam engineering) that the pressures were raised from 75 up to 150 pounds per square inch, and that was felt to be the limit of expediency for some time to come. It was the limit of pressure until steel makers put in rolls and were able to cast ingots of sufficient size to make heavier and larger plates, which enabled boiler makers to construct Scotch boilers reliable enough for 250 pounds, as the present limit, and this is the only type that ship owners are willing to adopt where they have so much at stake. Meanwhile there are boilers of other types which possess all the qualities needed for very high speeds. Sufficient experience has been had with them to warrant their adoption from an engineer's point of view, but capital is so proverbially timid that it "halts between two opinions" and the project stands still. Not all ship owners are of the class mentioned, for there are steamships afloat carrying 300 pounds on their boilers, and if necessity demanded this figure could be materially increased. If we seem to dwell upon boilers as a detail of high speed on sea it is for the reason that they control it. As the boilers are so is the speed, for if they are not able to furnish steam for the engines it matters not of what type these last are; even the turbine, which is being discussed as an alternative of the reciprocating engine, must have adequate boilers to work up to full power.

Aside from the engineering aspect of 25-knot vessels, there is in this particular case another feature which complicates it to some extent, and that is a political one. The British Government has made a compact with the Cunard Company whereby, in consideration of $750,000 paid to the latter annually, the Government may take possession of the ships in time of war as transports or for other purposes not specified. This is not wholly popular with the British public, for there is a strong party in naval circles who feel that the only one to profit by this arrangement will be the Cunard Company, because unprotected cruisers have proven quite unsuitable for defense, being at the mercy of modern torpedo boats and destroyers. Besides these considerations the speed of foreign cruisers and battle ships so nearly approaches that of the projected Cunarders that they would enjoy but slight immunity from capture by reason of an alleged superiority in that respect. It is further urged by those opposed to subsidizing the new vessels (without which they will not be built) that the naval vessels now building but not yet completed can give the same service at far less cost than any 25-knot merchant ship. It is an open question whether the proposed payment of such an enormous subsidy will benefit the navy at all.

Engineers all over the world will view the building of these vessels with lively interest, for they will mark a departure in many directions from any similar undertaking. Their end of the proposition is the crucial one. There is nothing in the naval architect's task to give anxiety as to the final result.

The Souder Coke Car.—A party of prominent capitalists and business men went to North Tonawanda from Buffalo in a special car over the Buffalo & Niagara Falls Line last Friday afternoon to witness the unloading of 111,000 pounds of coke from a car recently patented by the Souder Car Company of New York at the Tonawanda Iron & Steel Company's plant. The party included W. B. Perkins, G. D. Allerton and Captain Souder of the Souder Car Company, Hugh Kennedy and C. B. Clark of the Buffalo & Susquehanna Iron Works, J. Carson, superintendent of motive power of the Pennsylvania Company, C. W. and F. H. Goodyear of the Buffalo & Susquehanna Railroad and two members of the Pressed Steel Car Company of Pittsburgh. The car that was unloaded at the iron works is the first of its kind put in service, and was built for the Weaver Coal & Coke Company of Weaver, W. Va. It is a self side unloader, and 3 minutes and 30 seconds were consumed in unloading after releasing the "dog" controlling the unloading mechanism. The builders—the Souder Car Company—are perfecting improvements by which a car can be unloaded in one minute.

The United States Circuit Court of Appeals at St. Paul has recently made a new interpretation of the Sherman Anti-Trust law. A local dealer had brought suit against the American Tobacco Company for refusing to sell him goods unless he would agree to buy nothing from their competitors. In deciding against him the Court drew this distinction: "The tobacco company and their competitors were not dealers in articles of prime necessity, as corn or veal, nor were they rendering public or quasi-public service, like a railroad company. Each of them, therefore, had the right to refuse to sell their commodities at any price." This view of the case is apparently based on common law rather than strict interpretation of the statute. If it should be sustained by the Supreme Court the scope of the Sherman act will be very materially narrowed.

The Kimberly Diamond Mines.

BY H. V. CONRAD, NEW YORK.

Some of your readers may be interested in a brief description of the diamond mines at Kimberly and a few recent characteristic views. The De Beers Consolidated Mines at Kimberly are a group of five within a space of about 5 miles, named as follows: De Beers, Kimberly, Premier, Bultfontein and Dutoitspan. These principal mines are the consolidation of the original small mines, or claims, which were each 30 feet square on the surface and having vertical boundary lines.

Fig. 1 shows a group of these claims as they appeared in 1875. As work progressed certain claims were carried down more rapidly than others, and, having to maintain vertical sides in the rather soft material, it is quite obvious that endless trouble soon arose, from the "tall claims" falling into the adjoining ones, that had been dug out. At the same mine, or group, the surface of the water is now 600 or 700 feet below the top of the pit. It will hereafter be worked from headings run in below the present bottom of the pit, and all hoisting be done through vertical shafts, as at the Kimberly mine. Of course all water must be pumped out before mining is commenced again.

The accompanying sketch, Fig. 2, shows the principle on which the Kimberly mine is worked. The blue ground, or diamond bearing rock, is a funnel shaped deposit showing quite well defined boundary lines. When the open pit reaches an impracticable depth for working an undercutting system is adopted. From a vertical shaft, through which all hoisting is done, headings are run to the blue ground, and form a net work within the confines of the pit. The roof of each heading is broken down and the space left is filled up by waste, which gradually settles into it. The deepest shaft, 2160 feet, is at this mine, and the bottom heading of the same is equipped with a complete rope haulage plant, the tram cars dumping automatically into the hoisting skips. It is stated that a ton of ground is hoisted at a cost of $1, covering all charges, the 2160 feet being done in 50 seconds, using the tail rope system.

Fig. 3, while showing a blast in the Premier mine, also illustrates the open pit working and complete rope haulage plant that finds its way out of the side of the pit, through the cutting shown in Fig. 4.

Miles of rope haulage carry the blue ground from the mines to large open spaces, where it is spread out and left lying for a year, during which time disintegration takes place, the process being assisted by large harrows dragged back and forth between traction engines stationed on either side of the field.

From these fields the blue ground is taken to mills, where the coarser material is crushed and passed through centrifugal washing machines. The diamond bearing material falls to the bottom of the machines and is then hauled to the "Pulsator" plant. Here it passes over jigging machines, the tables of which are coated with grease (it having been found that diamonds have an

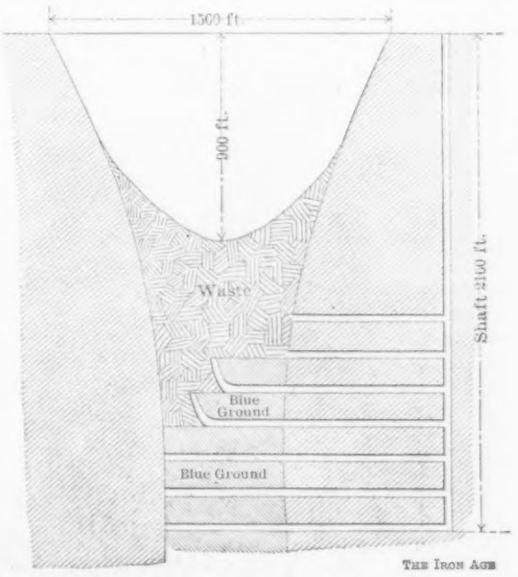


Fig. 2.—Modern Method of Mining.

Fig. 1.—The Dutoitspun Diamond Mine in 1875.

THE KIMBERLY DIAMOND MINES.

affinity for grease), that holds the diamonds and allows the waste to wash over. When a machine has accumulated a sufficient number of stones the grease is scraped off and boiled, thus freeing them. The remaining process is to sort the diamonds according to their purity and value into some 12 or 15 grades. Figs. 5 and 6 are interesting as showing the stone at start and finish.

About 3000 white men and 12,000 natives are employed at present on the Consolidated Mines, and, of course, all possible safeguards are used to prevent theft. It is a serious matter to be found in Kimberly having in one's possession an uncut diamond, unless a permit accompanies it. Fig. 7 shows a native compound, housing 1800 men, who are not allowed outside of it during the term of their

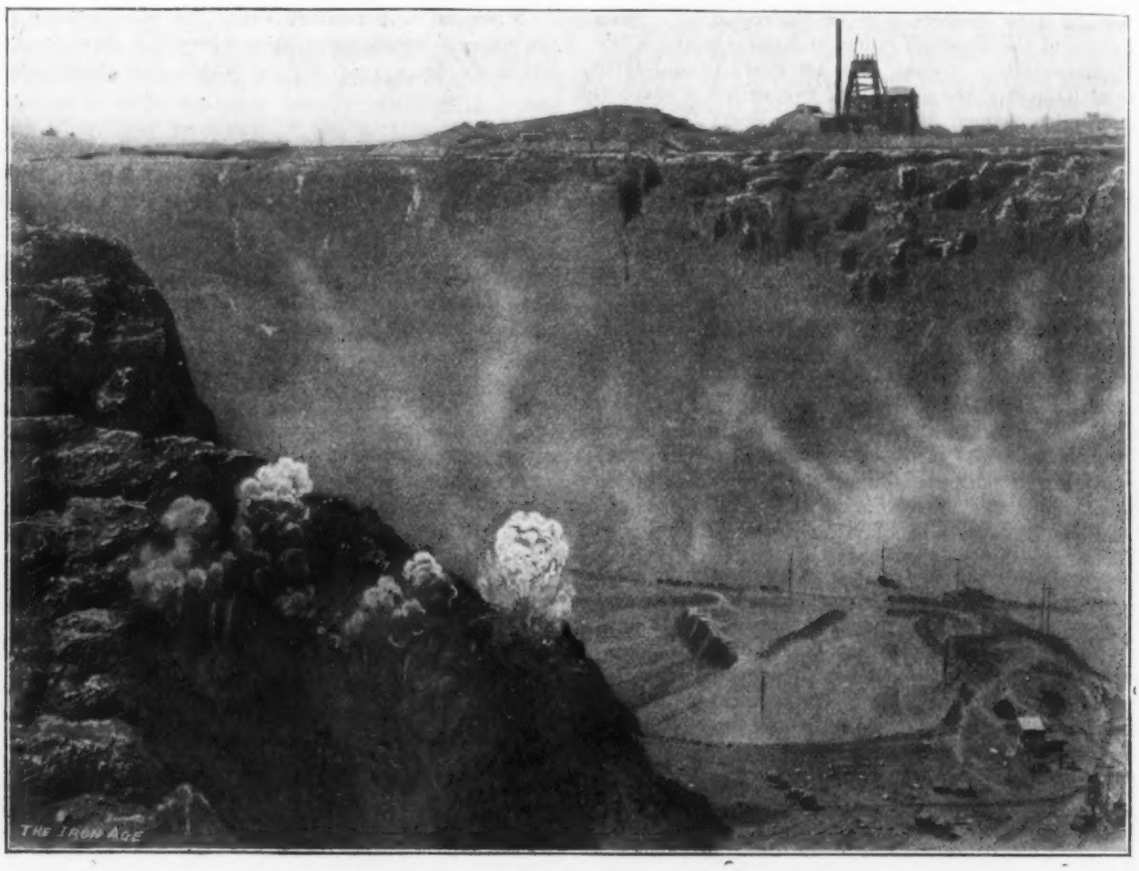


Fig. 3.—A Blast in the Premier Diamond Mine, Wesselton.

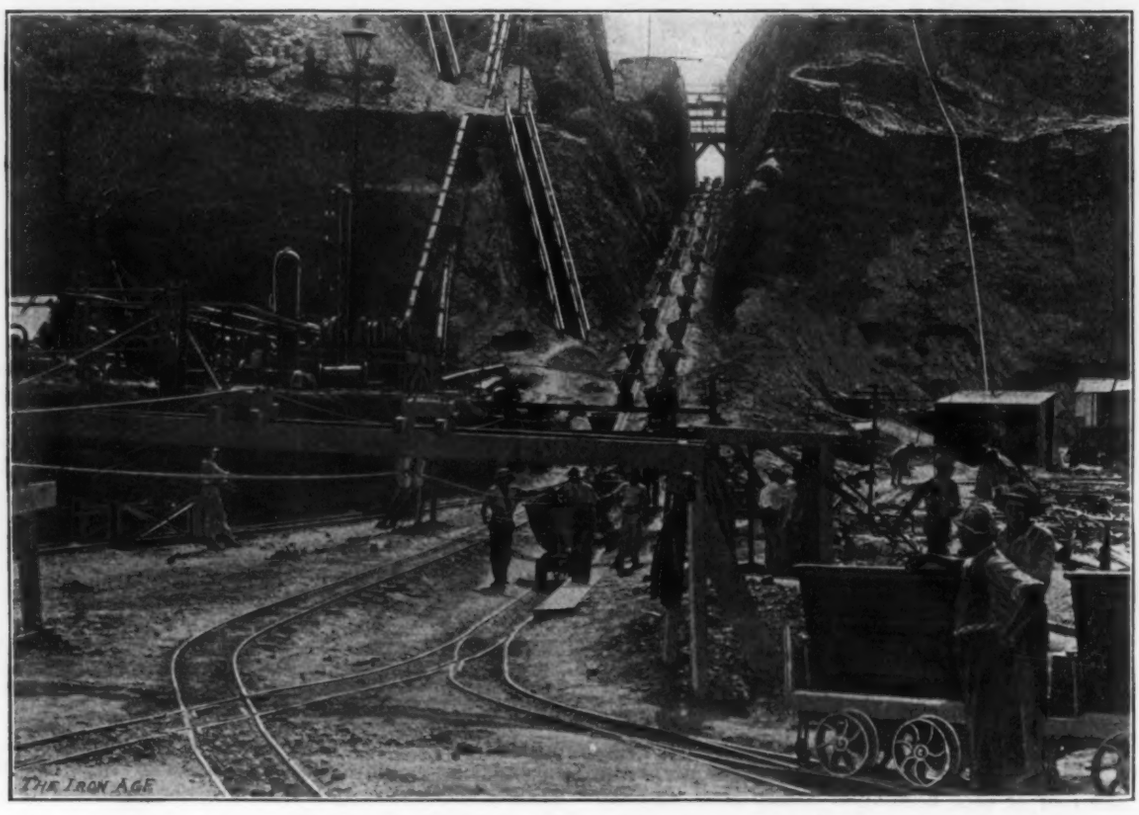


Fig. 4.—The Haulage Plant at the Premier Diamond Mine.

THE KIMBERLY DIAMOND MINES.

employment, and who generally pass to the mine inclosure through underground passages. The wire netting over certain sections of the compound is to prevent throwing articles to confederates outside.

Modern machinery is greatly in evidence at these mines, and in the latest power house they have just erected two 1500 horse-power Parsons steam turbines direct connected to generators, all of Westinghouse build.

The American Boiler Manufacturers' Convention.

The fifteenth annual convention of the American Boiler Manufacturers' Association was held at Chattanooga, Tenn., November 10 to 12, the sessions being held in the convention hall of the Read House. Nearly 150 delegates and visitors, including ladies, were in attendance. The opening session, on Tuesday morning, November 10, was called to order by the association's president, John O'Brien of St. Louis. Addresses of welcome were made by Hon. A. W. Chambliss, Mayor of Chattanooga; C. A. Lyerly, president of the Chattanooga Chamber of Commerce; E. F. Sevier, also of the Chamber of Commerce; C. D. Mitchell, president of the Chattanooga Manufacturers' Association, and L. G. Walker, of the local association of boiler makers. Responses to these addresses were made by W. H. S. Bateman of Philadelphia and James Lappan of Pittsburgh, ex-president of the association. Executive sessions were held on Tuesday afternoon, Wednesday morning and afternoon, and Thursday afternoon. While the delegates were in business session the ladies and visitors were entertained by the local committees in trips to the various points of natural and historic interest in and about the city. The evenings were devoted to general social enjoyment, Wednesday evening being spent at the theatre, and the convention closing on Thursday evening with a banquet.

Col. E. D. Meier, president of the Heine Safety Boiler Company, and chairman of the committee which has been working to get a revision of the marine boiler inspection rules, made a report to the effect that Secretaries Shaw and Cortelyou have agreed to recommend the revision, but that the Board of Supervisors has as yet failed to do anything along this line. In discussion of the attitude of the supervisors, various members spoke at length and in very strong terms. It was stated that the supervisors, or many of them, are men of political appointment, knowing little of boiler practice and liable to error of judgment in allowing themselves to be influenced to actions hurtful rather than helpful to the interests under their charge. It was decided to continue the committee and to enlist the co-operation of other organizations in the cause. Members are also to personally address their respective congressional representatives upon the subject. A vote of thanks was tendered Colonel Meier and his committee.

Discussion of the relative merits of the water tube

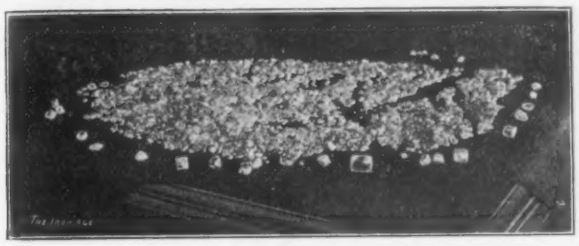


Fig. 6.—A Day's Diamond Washing of the De Beers Company.

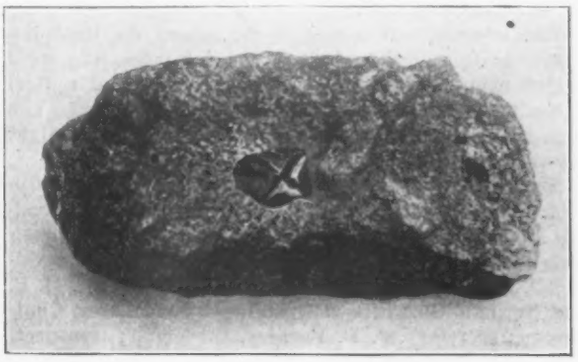


Fig. 5.—A Diamond in the Blue Ground.

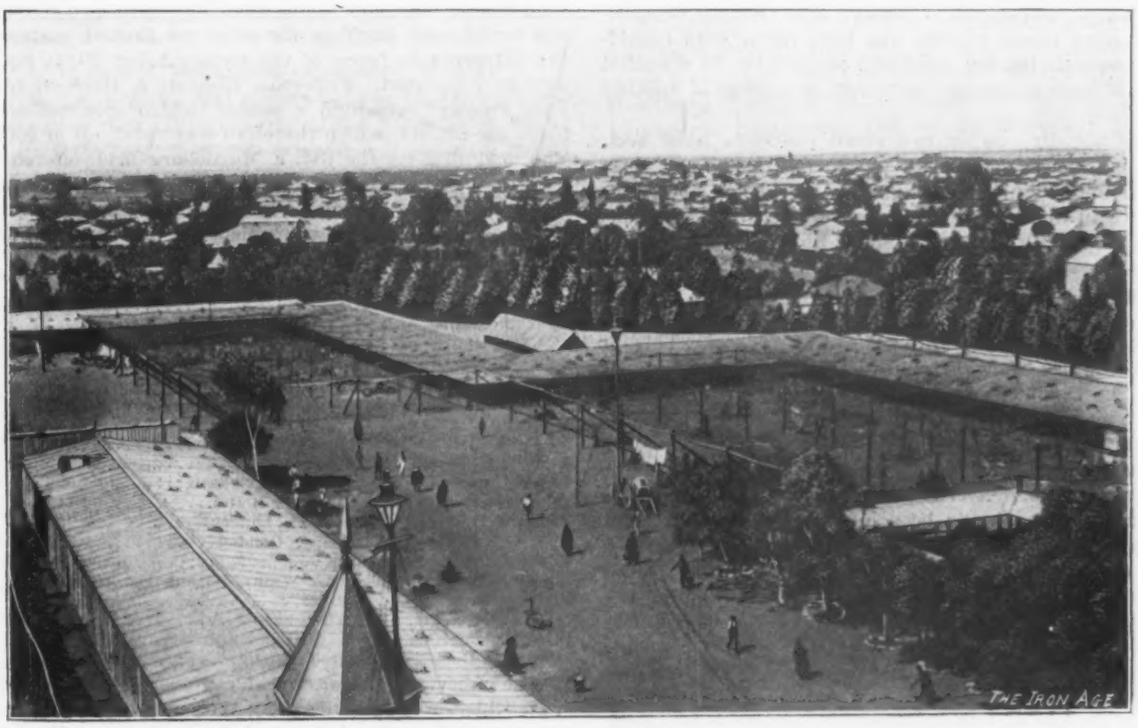


Fig. 7.—The De Beers Company's Native Compound.

THE KIMBERLY DIAMOND MINES.

and Scotch marine types of boilers for stationary use showed the majority to be in favor of the former.

It was the opinion of several members, who spoke at length upon the subject, that the association had accomplished considerable in the way of improvement of materials and workmanship in boiler construction, and more than had been done by the inspection and insurance companies.

After a sharp contest between Atlanta, Philadelphia, Atlantic City, Buffalo, Cleveland, Detroit and St. Louis, the last named city was chosen as the meeting place for the convention of 1904.

The labor situation was by no means the least important matter in the minds of the delegates, who were divided upon the question of the advisability of radical action upon the "walking delegate proposition." The more conservative were opposed to any steps which might aggravate the difficulties with labor organizations.

The officers of the past year were re-elected, as follows: President, John O'Brien, St. Louis; first vice-president, Robert Munroe, Jr., Pittsburgh; second vice-president, Samuel Borger, Columbus, Ohio; third vice-president, J. M. Robinson, Boston; fourth vice-president, M. F. Cole, Newnan, Ga.; fifth vice-president, J. F. Casey, Chattanooga; secretary, J. D. Farasey, Cleveland; treasurer, J. Wangler, St. Louis.

Notes from Great Britain.

The Markets.

LONDON, November 7, 1903.—From the American point of view, the British metal market is now becoming exceedingly interesting. It is almost, if not quite, in a panicky condition, because of the fear of American competition. It is curious to observe that German competition during recent months has been taken with considerable equanimity, but American competition, in the mind of the British maker and consumer, is a horse of another color.

Undoubtedly one or two small contracts have been made on American account, but so far the volume does not amount to much. Yet the mere threat has gone some distance in disorganizing affairs. Rumors of large contracts made with the United States Steel Corporation and with other American concerns are now thick as leaves in Vallambrosa.

Prices have been quoted by the Corporation agents for sheet bars at 80 shillings, c.i.f. Liverpool. This is 2 or 3 shillings below German rates, and, of course, much below the English. At the same time the price is not a great temptation for Midland consumers. Roughly speaking, we may add 8 or 9 shillings to the Liverpool cost of American sheet bars, which would bring it to 88 or 89 shillings per ton, delivered in the Midlands, and one Midland firm have actually been quoted 90 shillings. This hardly demoralizes the German rates, for although last week they raised their quotations to 92 shillings, there has since been a steady decline, and on Thursday the top price was 88 shillings. Again, the quantities offered are too large for average consumers at the present moment. An order for 1000 tons is considered good, whereas the original desire of the American agents seems to have been to dispose of lots of somewhere about 10,000 tons. However, we may assume that American offers hitherto have been more tentative than definite.

The mere fact of the Americans being on the market promptly brought British prices down by 2 shillings 6 pence, to £4 10s. or £4 7s. 6d. Present appearances therefore point to a triangular contest for the trade of British consumers between American, German and British makers of raw material. One American agent states specifically that, whatever may be said as to the near future, at the present moment there is no further American steel on offer.

The advent of severe American competition suits admirably the rollers of finished material. It means cheaper and more plentiful supplies of raw material, but it will cause a corresponding readjustment in the prices of finished articles. The whole situation, as one sees it to-day, completely justifies the attitude of consumers during the past six months in rigidly adopting a policy of buying from hand to mouth. Prices all round are distinctly weakening. I append herewith standard prices, but I do not think I am exaggerating when I state that for all practical purposes actual prices are 5 shillings under standard rates:

Pig Iron: Middlesbrough warrants, 42 shillings 9½ pence. Forge qualities: Staffordshire cinder, 47 shillings 6 pence; part mine, 48 shillings to 49 shillings 6 pence; all mine, 60 shillings to 67 shillings 6 pence; best ditto, 75 to 80 shillings; cold blast, 95 to 100 shillings; Northamptonshire, 47 shillings to 48 shillings 6 pence; Derbyshire, 48 shillings 6 pence to 49 shillings 6 pence; North Staffordshire, 49 to 50 shillings; Lincolnshire, 50 shillings 7 pence.

Public stores stocks, Thursday, November 5:

	Tons.
Connal's, at Glasgow	10,188
Connal's, at Middlesbrough	105,050
Hematite (West Coast)	14,448

Finished Iron: Marked bars, £8 10s.; Earl of Dudley's brand, £9 2s 6d., second grade £7 10s.; common unmarked bars, £6 5s. to £6 10s.; North Staffordshire bars, £6 10s. to £6 15s.; angles, £6 15s. to £7; sheets: singles £6 17s. 6d. to £7, doubles £7 to £7 2s 6d, trebles £7 12s. 6d. to £7 15s.; galvanized corrugated sheets, f.o.b. Liverpool, £11; hoop iron, £6 17s. 6d. to £7 2s. 6d.; nail rod and rivet iron, £6 12s. 6d. to £6 15s.; gas strip, £6 7s. 6d. to £6 10s.

Steel: Bessemer billets, £4 10s. to £4 15s.; Siemens billets, £4 15s. to £4 17s. 6d.; mild bars, £6 to £6 5s.; girder plates, £6 5s. to £6 10s.; boiler plates, £6 15s. to £7 5s.; girders, £5 15s. to £6 5s.; angles, £5 10s. to £5 17s. 6d.

An Important Contract.

Last Tuesday the London County Council indorsed a contract for four 5000 horse-power engines for the new Greenwich electric tramway station, with John Musgrave & Sons of Bolton for the sum of £96,713. The fact was not allowed to pass unnoticed that their price was far above other firms. Of the 16 firms who tendered, four were Scotch and nine English companies, two German and one Danish; but one of the English firms, the Wallsend Slipway & Engineering Company, sent two tenders, one for German shafting, the other for English material, the difference in favor of the former being £6000, equal to over 7 per cent. Fullerton, Hodgart & Barclay, Limited, Paisley, submitted a tender, which was not complete, for £36,817, which therefore was ruled out of court. The next firm on the list, a Magdeburg firm, offered to build a different type of engine from the somewhat unusual machinery specified, and their bid was also rejected on this score. The complete list of firms, with the amount of their tenders, is interesting:

Fullerton, Hodgart & Barclay, Limited, Paisley (incomplete)	£36,817	0	0
Maschinenfabrik Buckau Aktien-Gesellschaft, Magdeburg	58,871	3	0
Cole, Marchent & Morley, Limited, Bradford	84,921	10	0
Wallsend Slipway & Engineering Company, Limited, Wallsend-on-Tyne (English steel)	92,525	0	0
Wallsend Slipway & Engineering Company, Limited, Wallsend-on-Tyne (German steel)	88,525	0	0
A. Borsig, Berlin (incomplete)	92,995	0	0
Davey, Paxman & Co., Limited, Colchester	96,693	0	0
John Musgrave & Sons, Limited, Bolton	96,713	0	0
Ferranti, Limited, Hollinwood, Lancashire	99,250	0	0
The Allis-Chalmers Company, London	99,750	0	0
Yates & Thom, Blackburn	100,680	0	0
Aktieselskabet, Burmeister & Wains, Copenhagen	105,683	0	0
Gourlay Bros. & Co., Dundee	107,168	0	0
D. Stewart & Co., Limited, Glasgow	109,068	0	0
D. Stewart & Co., Limited, Glasgow (alternative)	105,492	0	0
Willans & Robinson, Limited, Rugby	131,857	0	0

The report of the electrical engineer of the council, J. H. Rider, was considered by the committee, and they recommend the council to adopt the tender submitted by John Musgrave & Sons, Limited, who, it may be remembered, supplied one of the two large sets of engines for the electric station for the Glasgow tramways, the other being supplied by the Allis Company of America. The experience at Glasgow evidently weighed with the committee and the electrical experts of the London County Council.

Profits and Dividends.

The Parkgate Iron & Steel Company have decided to pay an interim dividend of 6 pence per share, the same as last year, out of the profits for the half year ending September 30.

All things considered, the results secured last year by Fraser & Chalmers, the well-known manufacturers of mining machinery, are satisfactory. The gross revenue amounted to £70,885, which was slightly in excess of the

previous year's total. The net profits amounted to £48,330, and a further sum of £2000 had to be written off for losses incurred during the South African War, bringing the total loss up to £5170 on machinery and supplies covered by commandeer notes, which the British Government refused to recognize. The company, it seems, in loyally following the Royal proclamation by refusing to allow their representatives in Johannesburg to sell supplies to the Boers for cash, had to accept commandeer receipts for all goods seized. Hence the loss now written off profits. Even after making allowance for this item, as well as for depreciation, the company are able to pay 10 per cent. on their preference and ordinary shares, and to carry forward £88,191, as against £83,988 brought in. The directors lament the fact that, owing to the scarcity of labor on the Rand, the demand for new and heavy machinery has not been as good as was hoped for, but it seems that a very fair business was done in small machinery and supplies. The company's stocks of machinery on June 30 were valued at £295,033.

An American Rod Mill in South Wales.

The American rod mill at the Rogestone works of Guest, Keen & Nettlefolds, Limited, has now been completely installed, but considerable secrecy is maintained as to the actual details. Manual labor is certainly reduced to a minimum, while the output is equal to at least six ordinary mills. The steel billets are unloaded from the railroad trucks by a large electric hoisting machine, erected by an American firm, which lifts 2 tons at the ends of the span, which is about 50 feet each side of the center upon which it turns. By this means the billets are carried to the mill, and placed within the reach of a smaller crane, fitted with a large magnet capable of lifting half a dozen, weighing 160 to 170 pounds each, and placing them on the rails, which run through the furnace. To meet the requirements of this mill the whole of the electric plant has been renewed and extended.

Proposed Reduction in Miners' Wages.

The South Wales coal owners have notified the Miners' Federation that at the meeting of the Conciliation Board on the 14th inst. they will demand a 5 per cent. reduction in miners' wages. The South Wales coal owners have initiated a movement for combination, whereby collieries may be shut down when their working becomes unprofitable, and that the cost of keeping them in repair be borne jointly. This action would probably throw 20,000 men idle.

The German Steel Syndicate.

Just as I am closing these notes, news comes to hand that there is a deadlock in the final formation of the proposed German Steel Syndicate. The vital question to be settled is as to whether the steel syndicate or trust will actually be established. On this point there is considerable divergence of opinion among the directors of the various concerns, and the outlook is not regarded as very promising. Dissensions have arisen between the works concerning the settlement of the maximum production of each works. As the firms which demand a greater output than that to which the others consider they are entitled are as determined in maintaining their claims as the remainder are in opposing them, the present position is practically a deadlock.

Orders for New Ships Declining.

There is not much to note in the returns of the shipbuilding trade for October. The output was about the average, and the total for ten months shows that the tonnage for the year will be considerably under that of last year. New orders that have come in are not enough to fill berths already emptied, so that on the Clyde and on the northeast coast the shipbuilding industry, which in many respects is the most important, is not doing well. On the northeast coast a number of contracts have been placed at very low rates, so that a certain number of yards are kept going even if the business is not profitable. The employers have given notice of a reduction of 5 per cent. on piece rates, and 1 shilling 6 pence per week on time wages. The representatives of the men have had a conference with the masters, who are very firm on the urgency of reduction. The men have been given a month for consideration. About 14,000 of them are affected.

The Growth of the Turbine.

Last Wednesday, at the Elswick Yard of Armstrong, Whitworth & Co., the third-class cruiser "Ameythst" was launched. She is 360 feet long, 40 feet broad, with a displacement of 3000 tons. The "Ameythst" is the first war ship fitted with turbines.

The Cunard Turbine Commission propose within a few weeks to enter upon a series of practical trials to determine the economy of the system, and, as far as possible, its "endurance." The Commission will charter for a short period the screw steamer "Arundel" and the turbine steamer "Brighton," both built by Denny, Dumbarton, for the London Brighton & South Coast Company's service between Newhaven and Dieppe. They are both the realization of model experiments in the tank of the builder's firm, and therefore attain the highest propulsive economy on dimensions varying only to suit the mode of propulsion. The "Arundel" is 277 feet long, 34 feet beam, and at 14 feet 6 inches draft displaces 1310 tons. The "Brighton" is 282 feet long and 34 feet beam, the increased length giving accommodation for 1000, instead of 900 passengers. The "Arundel" steams 21 knots for 5600 indicated horse-power. The "Brighton," it is estimated, indicates 7000 horse-power for about 22 knots. The Commission, however, will thoroughly test both vessels.

New Admiralty Orders.

The Admiralty have placed the orders for the 15 torpedo boat destroyers included in this year's naval programme, and the contracts have been given to firms who have made this type of craft a specialty. Three of the boats are to be built by Palmers Company, Jarrow-on-Tyne, who have had a long series of successes; three are to be built by Messrs. Laird of Birkenhead, another firm who have attained their 25½ knots with the vessels ordered a year ago; another three are to be constructed by Hawthorn, Leslie & Co., Newcastle; three by Messrs. Thornycroft of London, and two by Messrs. Yarrow of London. The fifteenth vessel will probably be a boat of special design, now in an advanced stage of construction. Three of the vessels, those ordered from the Jarrow firm, will be fitted with inclosed engine with forced lubrication.

Four new scouts are to be built for the Royal Navy by contract. They are each to steam 25 knots per hour. Their armament will consist of ten 12-pounder quick firing guns. The Admiralty has also given instructions for three new armored cruisers to be built by contract, to have a displacement of 13,550 tons, and will be fitted with engines of 23,550 horse-power, propelling them at a speed of 22.33 knots per hour. One will be built by Armstrong, Whitworth & Co., another by the Fairfield Shipbuilding Company, and the third by Vickers, Sons & Maxim.

It has now been practically decided that the three battleships to be built by contract under this year's navy programme will be of the "King Edward VII" class, of which five have already been laid down. We shall then have eight battleships of the same class, and a very good class, too. Each of the ships is 425 feet long, 78 feet beam, and at 26 feet 9 inches draft they displace 16,350 tons. Their speed is 18½ knots, and their armament embodies an important improvement, including as it does four 12-inch, four 9.2-inch and ten 6-inch guns. S. G. H.

Alfred Mosely, who is inspecting leading educational institutions throughout the United States with a number of English editors, after visiting the plant of the National Cash Register Company, at Dayton, Ohio, is reported as having accredited it with being a model for the world. He said: "The advanced ideas which have been worked out here in practical form will spread in this country and in Europe, and then we shall get a real solution of the labor question. I do not know of any other institution in the world which offers such illustrations of proper working conditions. I have never seen such conditions elsewhere. This factory is being conducted in as nearly a perfect manner as social conditions will permit."

The Branch Specialties for Automobiles.

The National Oil Burner & Equipment Company of St. Louis are makers of a number of special devices for use on steam driven automobile vehicles, some of them adaptations and alterations of Branch devices which have been for some time familiar to those interested in steam generation in power plants. In Figs. 1 and 2 are shown views of the Branch steam accelerator and fuel economizer, an adaptation for automobile service of the Branch crude oil burner for steam boilers, furnaces, forge fires, &c. Fig. 3 shows the method of piping up and attaching the burner of Figs. 1 and 2 to a fire box suitable for automobile boilers. The appearance of the complete device in use upon an automobile delivery wagon is well

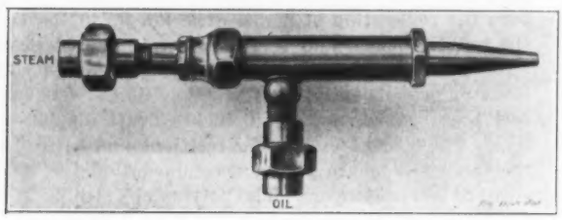


Fig. 1.

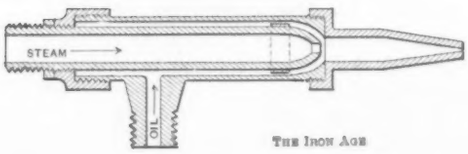


Fig. 2.

duction of smoke. As seen in Fig. 3, the oil supply pip½ inch in size, is passed in a coil through and within th fire box, where the heat of the flame is in constant co tact with it. The burner is so placed that only its ti extends into the fire box, this to avoid clogging due t gasification of the oil within the nozzle. The nozzle ti should be central within a circular opening at least 3 inches in diameter, where no other entrance for air is

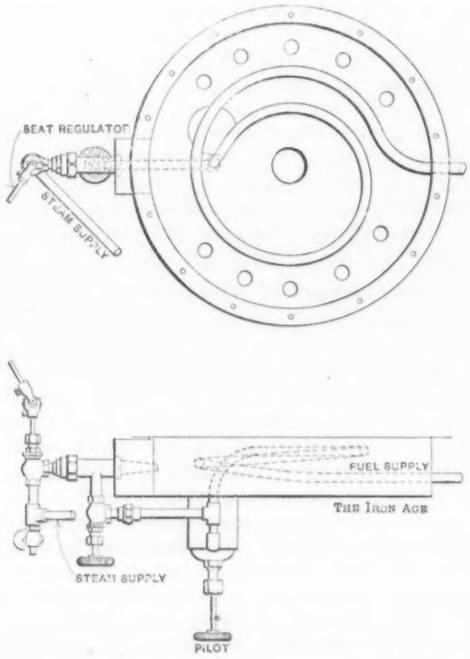


Fig. 3.

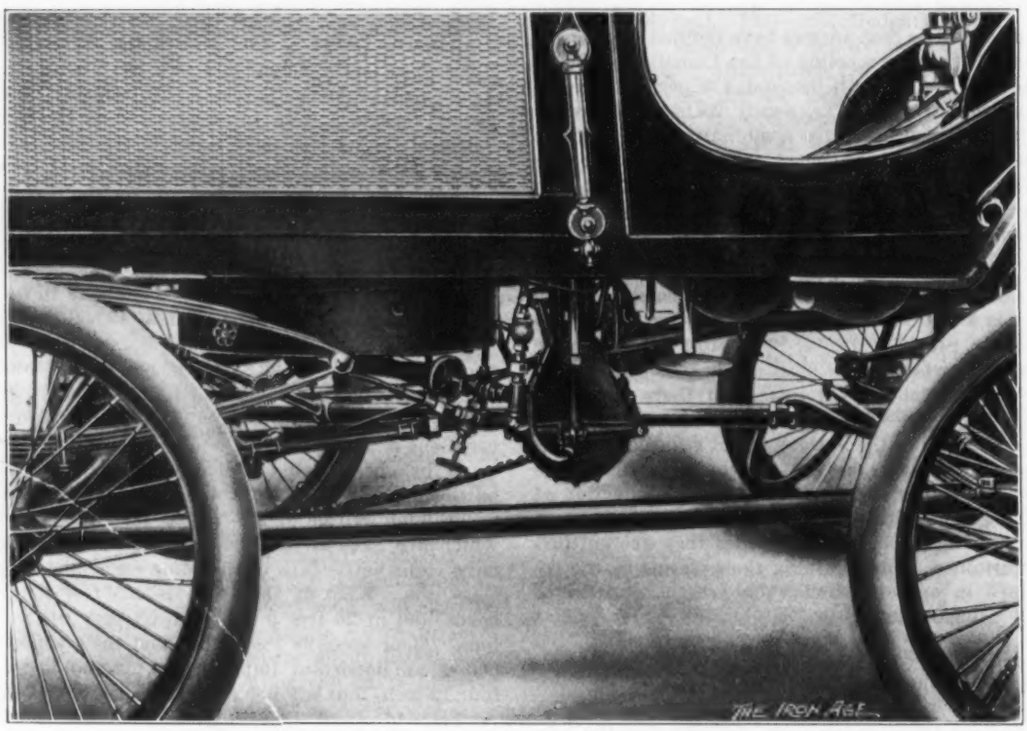


Fig. 4.

BRANCH STEAM ACCELERATOR AND FUEL ECONOMIZER.

illustrated in Fig. 4. The design of the burner or "steam accelerator" aims to accomplish a thorough mixing of the generated gases and air by means of steam, the result being, as stated, a very high efficiency in the combustion of gasoline or kerosene. It is claimed that difficulties in the maintenance of steam pressure are minimized, and that the fire may be forced by the occupant of the vehicle without leaving his seat and without provided, thus meeting the requirements of perfect combustion in the way of ample air supply. The oil should be fed under a pressure slightly greater than that of the steam, about 1 pound of excess for the oil for each 12 or 15 pounds of steam pressure being found to give good results with either kerosene or gasoline. In starting the burner the directions are to use a piece of waste saturated in oil, the jet of steam to be started before the oil

valve is opened. In shutting down, the oil valve should be closed first. The oil should be fed through a needle valve, so that close regulation may be had; for the steam a globe valve is suitable. Particular attention is called to the fact that the burner and oil supply are under complete control from the seat, no fuel regulator being required.

The Branch condenser and oil eliminator is shown in face and end views in Figs. 5 and 6. This device is usually placed upon the dash of the vehicle, as shown in Fig. 7, which also illustrates the use of the Branch steam trap for automobiles. Referring to Fig. 6, the exhaust inlet from the engines is at the center of the back, just above the lug which is used in securing the condenser in place on the machine. This exhaust connection is at A in Fig. 7, the engine Z exhausting into the pipe or hose S. The entering exhaust finds its course to the condensing tubes opposed by a filling of cotton waste or excelsior, Fig. 6, within the space behind the tubes, packed tightly enough to catch and retain the particles of oil in the steam, yet without offering any considerable resistance to the free flow of the steam to the tubes. The opening shown in Fig. 6 is for removing and replacing the filtering medium whenever necessary, and is ordinarily covered by the plate seen at the right of Fig. 5, held in place by four wing nuts. Passing the oil eliminator the steam reaches the air cooled copper tubes, is condensed and flows by the ¼-inch pipe G, Fig. 7, to the steam trap K, whence it is automatically returned through the ¼-inch pipe or hose Q to the tank T. At L L L are drain cocks for the condenser, trap and return pipe, and at B is connected an overflow pipe, M, by which exhaust

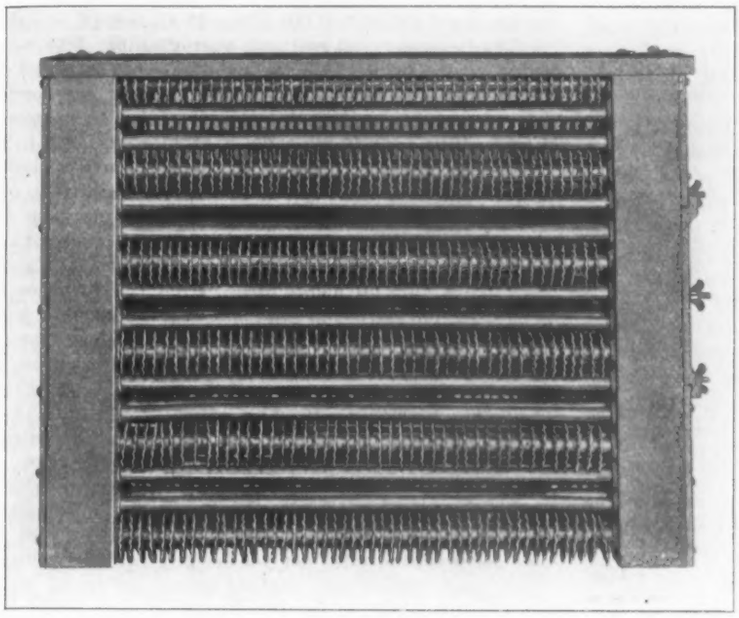


Fig. 5.

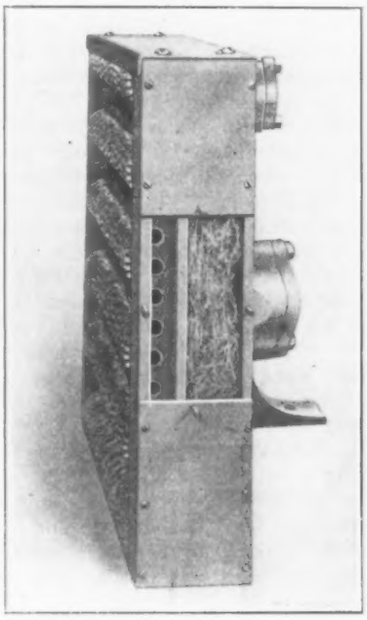


Fig. 6.

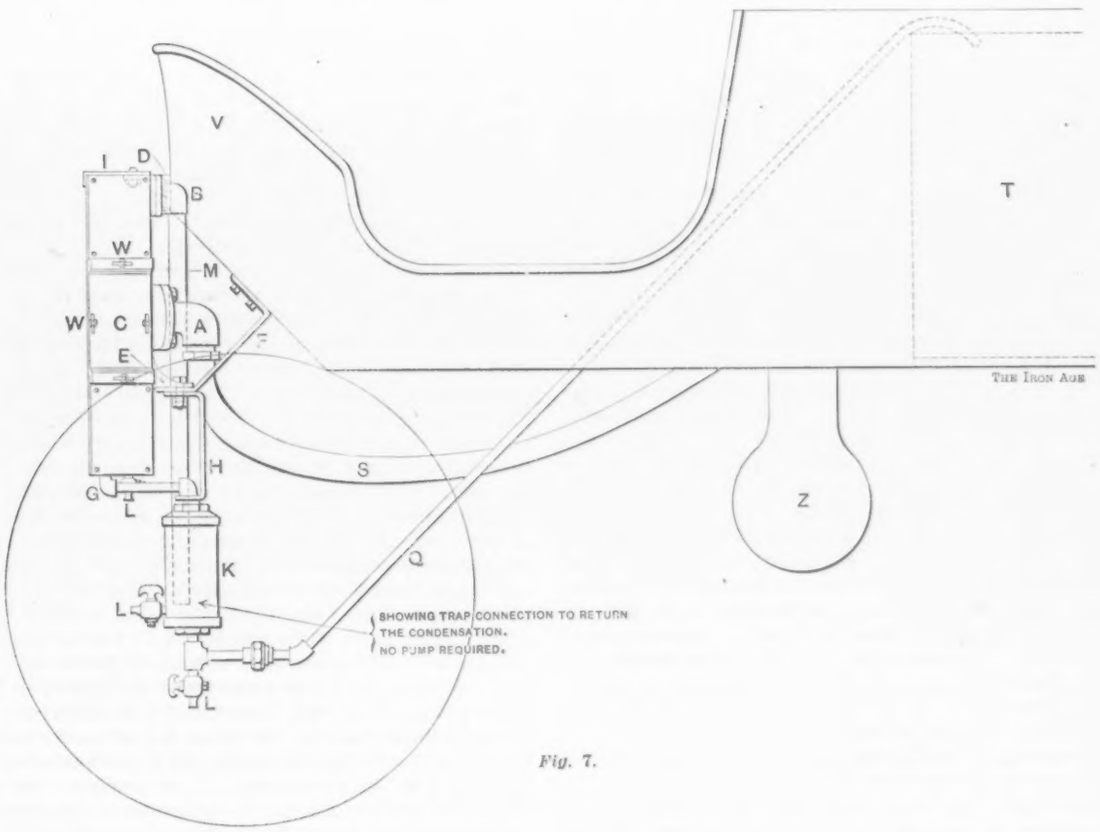


Fig. 7.

BRANCH OIL ELIMINATING CONDENSER AND STEAM TRAP.

steam may escape when the machine is started and before it has acquired the speed necessary for the condensing due to air cooling of the tubes. The use of the trap is stated to obviate the necessity for a pump, and to effect return of condensation water to the tank with practically no loss and at little or no cost. It is claimed that 90 per cent. of the water passing the engine as steam may be returned to the tank, free of oil and perperfectly suitable for being fed again to the boiler. Included in the 10 per cent. of loss contemplated in this claim is the item of free steam exhaust in starting, when no condensing is possible. This condensing equipment is said to be equally suited to flash, semiflash, water tube or fire tubular boilers.

The Branch steam separator, not illustrated, is designed to be placed in the steam pipe between the boiler and the engine, to remove entrained water and moisture from the steam. The separator is small, being only 1¾ inches in diameter and 4 inches long, and is in the form of a vertical cylinder, within which is suspended a baffle plate, leaving at its edges a narrow space between it and the walls of the cylinder. Inlet and outlet opening are at opposite sides of this plate, near the top of the cylinder. The entering steam impinges upon the baffle plate, casting the entrained liquids upon it and passing around the plate to the outlet, while the separated liquids flow to the bottom of the chamber and are there removed and returned to the tank T, Fig. 7.

It is believed that by the use of any or all of the line of Branch devices on automobiles considerable economies may be effected and material steps made toward making of the steam driven vehicle a machine more economical and efficient than it is commonly understood to be.

W. W. Scranton on the Lackawanna Plant.

W. W. Scranton of Scranton, Pa., who was for many years general manager of the old works of the Lackawanna Iron & Steel Company, and erected and operated the works of the Scranton Steel Company, retiring when the merger of the two companies took place, has written to the Scranton *Times* of November 7 the following interesting letter:

I had lately heard so many stories of trouble with foundations, engines, machinery and buildings settling, ore bank sinking, &c., that, having for my means, considerable stock in the company, I thought I would go see for myself. I accordingly spent all last week inspecting the plant. First, let me say that, as regards any trouble with foundations of engines, machinery or buildings, I could find no sign of any settling, nor did any one show me any. What may develop hereafter, of course, I cannot say, but it will be time to cross that bridge when reached. These stories seem to have been told with a purpose. A small part of the open air floor of the ore dump did sink, but as this sinking did not disturb either the furnaces on one side or the concrete bank of the great canal on the other, it in no way affects the working capacity of the plant. As is well known, the works are located on land which appears to be silt and stuff washed in from Lake Erie, so that all foundations have to be based on piling driven from 50 to 75 feet down to hard pan or rock. Of course, this has been enormously expensive, but is compensated by the advantage of the location. Practically all this piling should be considered as part of the cost of the land.

The scheme of the works is to roll the rails from the initial heat of the blast furnaces, with the new and bold idea, to America at least, of using also as much of the waste gases of the furnaces, hitherto largely thrown away, for direct power in gas engines, running dynamos furnishing electricity for all sorts of purposes around the works, for which steam has ordinarily been based. These uses are innumerable, and will readily occur to any one acquainted with a plant of this nature. Only a bold man, with the full courage of his calculations, would dare to be the first to adopt such an innovation, and for this Mr. Wehrum deserves great credit. Whatever doubts may have been originally felt by any have been triumphantly answered by 8000 horse-power of gas engines in beautiful operation, all fed by waste gas from only the two smaller blast furnaces yet running. When the four large furnaces are finished and started there will be fully 30,0 more horse-power available. It hardly requires an engineering education to see the amount of money th saved.

The plant has the usual foundry, machine and oth shops incidental to such works, all well planned, commodious, and their machinery also run by electricity furnished as stated above. Electric traveling cranes are everywhere and command everything, and there are labor saving arrangements of all kinds at all points.

The Bessemer and rail mill were running. I have seen about all the principal Bessemer plants in the world, but for beauty and simplicity of arrangement, for conveniences for rapid running, this one certainly is a surpassing model. With four 10-ton converters, blowing heats in less than seven minutes, with blowing power to blow doubles —that is to say, two heats at a time, the man who can't stimulate his men to drive that Bessemer plant up to a steady minimum of 20,000 tons of ingots a week, or over 1,000,000 tons a year, should not call himself a manager. Thus far, no metal direct from the furnaces has been used, but only cold pig melted in the cupolas, which are merely meant to be subsidiary to the blast furnaces. I presume they will begin taking metal direct from the furnaces just as soon as the various petty causes of delay incidental in first starting such a plant are eliminated so as to get the men accustomed to every economy for which the works are designed. But, of course, like the gas engines, this also requires a little courage. As the Bessemer is designed to furnish steel not only for the present large rail mill but also for a second mill, not yet erected, for the rolling of small rails, billets and various shapes up to 12 inches, we are not likely to see the Bessemer show what it is really capable of till mill No. 2 is also running.

Without going into details, I may say that the rail mill is unique, its machinery and engines are of the most massive type, reducing from a 20-inch ingot to rail in 15 passes, and also giving the rail the much desired and invaluable cold finish, which makes a long wearing rail. While I was there the boys were rolling four and sometimes five ingots at a time, equivalent to 20 100-pound rails, simultaneously, and the mill ought to be able, as soon as the men get used to things, to turn out 10,000 to 12,000 tons of rails weekly, with ease. Indeed, much more would not surprise me. Of course, just at starting, there are innumerable and irritating petty causes of delay, which patience and practice will soon do away with.

Such is the capacity of the works in their present half finished state. But it must be remembered that the coke plant, with its arrangements for saving its by-product of ammonia; the four immense blast furnaces, 100 feet high; the great open hearth plant and great structural and plate mills, as well as No. 2 rail mill, are not yet built, and cannot possibly be completed for a very considerable time yet. When done, the plant will have an easy capacity of 1,200,000 tons of finished product per annum.

The general plan of the works is evidently the result of the most careful and painstaking calculations, and is symmetrical, complete and admirable. In my judgment it is a great and noble design, and Mr. Wehrum is entitled to immense credit. He is a really great mechanical engineer, and I think it unfortunate that the company has lost his services before his construction plans have been fully carried out. I heard rumors of changes to be made in his plans. If correct, I am satisfied it will prove matter for ultimate regret. The plant has as good a location as any in the United States for the collection of its raw material and the distribution of its product. All sorts of rumors are afloat that it will either be absorbed by or leased to the United States Steel company. As it has the advantage in its fixed charges of fully $5 per ton over the United States Steel Company (which is a fortune in itself), and, with its lower phosphorus and cold finish, can make a rail of better quality, I cannot believe that any such folly as giving up the company's independent position is seriously contemplated. If any steel company in the country can make money the Lackawanna Steel Company can when Mr. Wehrum's plans are carried out. If they do not then make money to satisfy the most sanguine expectations, it will only be because the business is handled by incompetents at one end or the

other, New York or Buffalo, or else deliberately mismanaged for a purpose.

Talks with Lawyers on the Labor Question.—V.

The object of this series of articles has been to point out legal remedies which have been overlooked in dealing with the lawlessness that grows out of strikes. So many of these remedies have been presented that it might seem useless to discuss any more until employers have had an opportunity to apply some of those already proposed, but there is one other branch of the question so important that it should receive attention.

The so-called Sherman Anti-Trust law, which was not written by the late Senator Sherman, was intended primarily to regulate illegal combinations of capital, but the distinguished Senator who framed the law has stated that it was also intended to cover labor organizations. Some eminent lawyers who have been contributing ideas to these articles believe that this law could be used to crush most of the lawlessness that attends great strikes.

The Supreme Court has held that manufacturing, or "making things," is not subject to the control of Congress. The Federal Government can tax the products of manufacturers, and in the course of the collection of such taxes, or to safeguard such collection, can impose severe restraints upon the operations of the manufacturer, as is done in the whisky and tobacco industries; but this is purely a revenue power of Congress, and is entirely distinct from the power to enact laws for the control of any one engaged in "making things." Congress has no power to declare how many hours a man shall work in "making things," or to limit or regulate in any manner a distinctly manufacturing operation. This fact ought to set at rest any concern among manufacturers regarding eight-hour legislation—but that is another story.

Since Congress has no power to regulate the goings or comings of either manufacturer or workingmen, it is clear that there can be no violation of the Sherman law when men merely join organizations for the purpose of obtaining higher wages or better conditions of employment. A union could not be held by the courts to be a "trust" within the meaning of this law, so long as it is otherwise lawful. On the other hand, it is believed by good lawyers that unions or combinations of men employed by railroads and engaged in interstate commerce are clearly covered by the Sherman law. It is significant that the great unions of railway men have been pursuing a very conservative course in recent years. There is no doubt that the governing officials of these unions have had the law explained to them in a manner that has made them cautious. If railway unions had been as aggressive in late years as some of the factory unions our troubles would have been worse than they have been, and we ought to be thankful to Congress for the protection that has been given to interstate transportation.

There is, however, a point where factory unions "cross the line" and violate the Sherman law in nearly all our great strikes, and if this law were enforced it would rob strikes of practically all their terrors for the manufacturer. The Federal courts, in defining the powers of Congress, have drawn a very clear line between making things and selling them. One is manufacturing; the other is commerce, and when the commerce extends across State lines it is under the absolute control of Congress—as much so as the importation of foreign goods into the United States. So long as the union restricts itself to making things (or refusing to make them), it is as far beyond the reach of Congress as though it were in Canada or China. When, however, it comes out aggressively and undertakes to prevent the manufacturer from carrying on his interstate business and fulfilling his obligations to citizens of other States it comes squarely under the Sherman law.

Manufacturers, as a rule, are not engaged in business for the fun of "making things." It is customary to get orders for the goods before they are manufactured, and when an order is accepted it becomes a contract. There may be a few industries in which goods are made and piled up in warehouses, awaiting customers to come and buy them, but these are exceptions. The size of the factory and the number of men employed are usually determined by the amount of orders that can be obtained for execution. The manufacturing is a distinct legal proposition, but it is subordinate to the commercial end of the business.

In practically all large strikes, and in most of the small ones, factory men who go on a strike are engaged in making things which the employer has contracted to furnish to citizens of other States. The closing of the factory is a restraint upon commerce, because it delays the completion of these contracts with citizens of other States. If the men have voted to go out on a strike there is probably no violation of the Sherman law, because they are merely exercising their right to make things or not to make them. If the strike is ordered by officials of the union who are not employed in the factory, for the purpose of injuring the employer and preventing him from carrying on his business until he complies with their demands, we have a different proposition.

The main point to be considered, however, is the old question of preventing lawlessness after the men have quit; and the Sherman law has an important bearing on this problem. If the men come back with pickets or slugging committees and prevent the manufacturer from carrying on his business and fulfilling his contracts with citizens of other States, there would seem to be a "restraint of trade" which the Federal courts would be bound to recognize. This is the vital point in practically all strikes. The unions are not content with calling the men to their homes. They practically decree that the manufacturer shall discontinue business and forfeit all the contracts he has entered into until he submits to their demands, and they do everything in their power that they dare to enforce their decrees.

The customer who is prevented from obtaining the goods he has ordered has some rights that ought not to be overlooked. He suffers a property loss for which he has no adequate remedy at law, for he has only the shadowy remedy of bringing suit for nonfulfillment of the contract. It is an almost universal custom, among manufacturers engaged in interstate commerce, to have a clause in contracts for the sale of their goods which exempts them from liability to the customer in the case of a strike.

It is a curious fact that the customer has been overlooked entirely in suits that have been brought by manufacturers to restrain aggressive unions from committing acts of lawlessness. Suppose, for example, that a steel mill in Pennsylvania has entered into a contract for the manufacture of bars of special sizes, or other steel products, for an implement manufacturer in Illinois. When the contract is half completed the steel workers go on a strike, and the implement manufacturer is unable to obtain the steel that he needs to fulfill his contracts with customers who have ordered implements from him. If the implement manufacturer would join with the proprietor of the steel mill in a bill of complaint in a Federal court, praying for an injunction against steel workers who were interfering with the employment of men by the steel mill, there would be, in the parlance of the day, "something doin'."

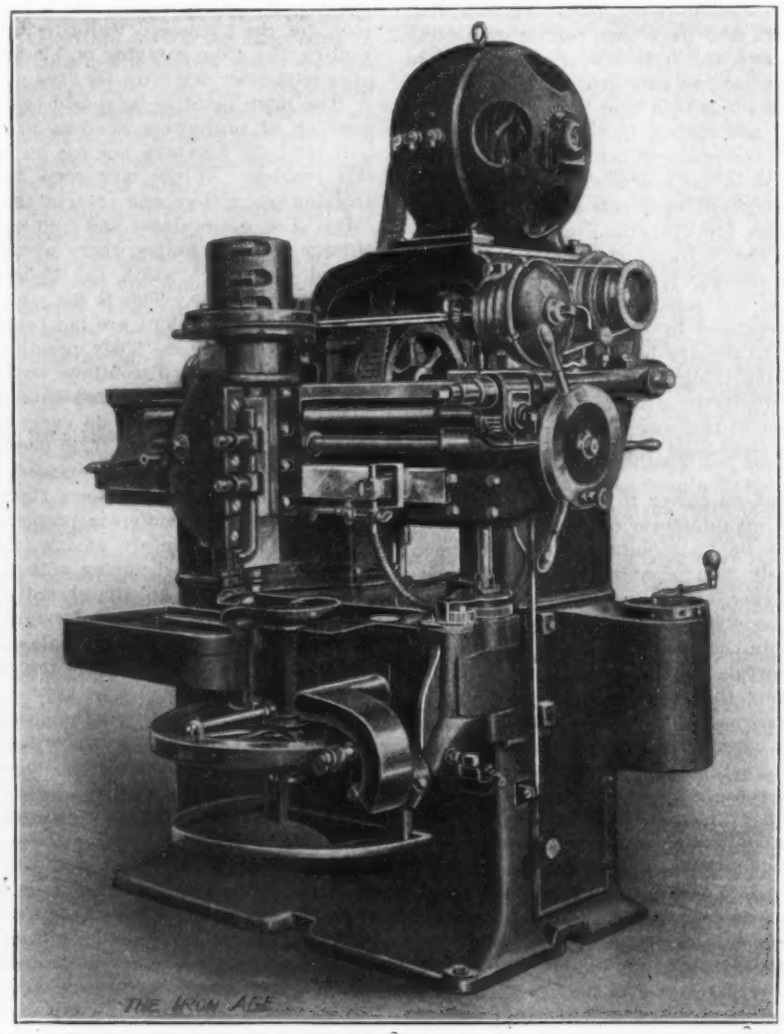
The railways have enjoyed a long period of peace, owing to the protection which the Sherman law gives them against strikes. Manufacturers, in an indirect manner, can obtain for themselves the same protection. It will not be necessary for every manufacturer in the United States to go into the Federal courts to establish his rights to freedom in the management of his business. A few test cases, perhaps one clearly defined case, would be sufficient to call a halt upon the aggressive, lawless and tyrannical policy which many of the factory unions have been pursuing. It will be difficult to reach some of these powerful unions by any other means.

The Limit of Output to be Removed.—The vote now being taken among the lodges of the Amalgamated Association on the question of removing limit of output in the sheet mills which sign the Amalgamated scale has been nearly completed. The vote so far is in favor of the

limit of output being removed, and it is practically certain this will be done. The union sheet mills have been under a considerable disadvantage on account of this limit of output, and when it has been removed they will be in much better position to compete with nonunion sheet mills, in which there has been no limit of output for some time.

Motor Driven Fellows Gear Shaper.

The Fellows gear shaper as a machine for producing cut gears by the generating principle is familiar to all who are interested in this line of work, although the tool is by no means an old one. These machines have heretofore generally been supplied with provisions for driving by belt from the usual countershaft. In the accompanying engraving is shown a Fellows gear shaper fitted for driving by a chain geared directly attached electric motor. In adapting the machine for this method of driving, the only special features necessary were the casting of a plate to span the pillow blocks of the regular driving gear so as to afford a support for the motor, and the substitution of a sprocket wheel for the cone pulley used with belt drive. With these changes a standard form has been evolved, as shown in the illustration. A 5 horse-power Crocker-Wheeler motor of the semi-inclosed type supplies the power, transmitting it with a reduction in speed through a Renold silent chain to the spindle which normally holds the cone pulley. The speed is further reduced through either of the two regular gear combinations, which are used alternately, making two speeds possible mechanically. In addition the motor is supplied with current on the Crocker-Wheeler four-wire multiple-voltage system, giving it six independent speeds, and, with the use of resistance, 12 intermediate ones. The upper 10 of the motor's 18 speeds constitute its working range, within which, through the faster gear combination, it drives the ram at from 94 to 45 strokes per minute, or, with the slower gear combination, 43 to 20. The lower eight available motor speeds may be used to extend the range down to six strokes per minute, though 20 is the minimum in ordinary practice. The machine is capable of cutting external gears up to 36 inches in pitch diameter by 5-inch face, and internal gears 28 inches in pitch diameter by 3-inch face, allowing any diametrical pitch up to four.



MOTOR DRIVEN FELLOWS GEAR SHAPER.

The South Pittsburgh Iron Works.—The South Pittsburgh Iron Works are building a plant at Claysville, Pa., and will engage in the business of designing and constructing steel bridges and buildings of all classes. They will also manufacture the Nemaine sectional fuel gas burners and all kinds of gray iron castings and will do general machine work. An important specialty will be the manufacture of the Jamison exhaust muffler for gas ranges. This muffler is referred to as being cheap, durable and economical, and the company are now prepared to furnish descriptive circulars and estimates. The plant of the South Pittsburgh Iron Works is not fully completed, but the foundry is finished and is in operation.

The Alabama Car Service Association, Birmingham, Ala., report a total of 67,192 cars handled last month, an increase over the same month of the previous year of over 10,000 cars. The heavy shipments of metals since the lowering of the price of pig iron and the reduction in the freight rate account for the increase in tonnage. The roads have not all the cars that are needed.

The Shuster Geared Roll Wire Straightener.

We present two views of a machine designed for such work as straightening a few feet of the end of a coil of wire previous to starting it through some automatic machine. The straightener is stated to be capable of handling stock of all sizes up to a diameter of ⅞ inch. As seen in both illustrations, two friction clutch pulleys are mounted upon the driving shaft. These are belt driven in opposite directions, and afford means of rotating the straightening rolls in forward and reverse motions. The hand controlling lever for the clutches is at the front of the machine, as seen in Fig. 1, and the shifting mechanism proper is at the rear, Fig. 2. With the forward motion clutch engaged and the rolls therefore turning in the corresponding direction the end of the coil of stock is entered and allowed to pass through the rolls until the desired length of wire has been straightened. At this point the end of the stock strikes a sliding stop gauge connected by cable with the shifter mechanism, Fig. 2. The forward motion clutch is thus automatically released and the rolls stop. The operator then, by movement of the hand lever, engages the reverse motion clutch, and the work is backed out of the machine. The reverse motion is faster than the forward, providing for rapid backing out of the straightened bar.

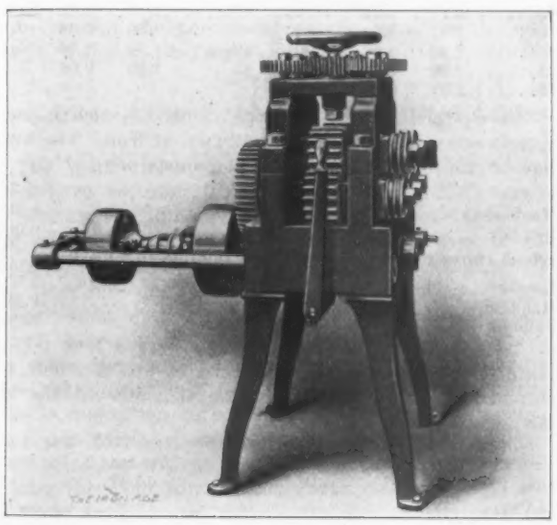


Fig. 1.

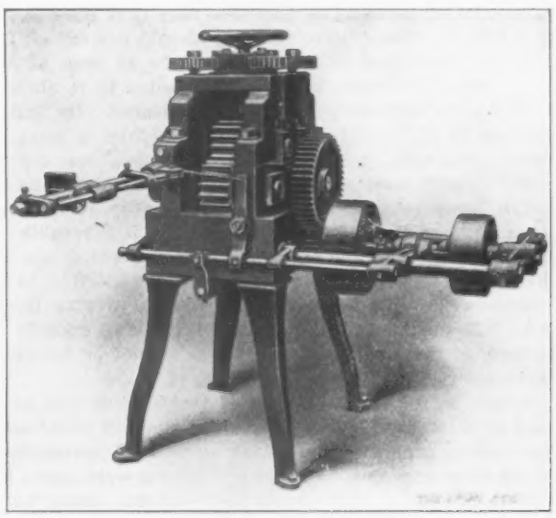


Fig. 2.

THE SHUSTER GEARED ROLL WIRE STRAIGHTENER.

There are five double grooved rolls, all positively geared together. A geared system of elevating screws in connection with the hand wheel at the top of the machine provides for adjustment to accommodate different sizes of stock. By disengagement of the automatic stop gauge the machine becomes a plain straightener for general use on stock of any length and of any size within the limits of its capacity.

The straightener is built by the F. B. Shuster Company, New Haven, Conn.

A Concrete Factory Building.

The Central Felt & Paper Company have nearly completed at Borden avenue and Dutch Kill Creek, Long Island City, an interesting building, the main room of which has a clear span of 51 feet and is 175 feet deep. The beams and the ceilings are entirely of concrete.

The general nature of the soil in the territory in and adjacent to Long Island City is generally known to be soft and spongy. Ordinary brick and frame buildings adjoining the tracks of the Long Island Railroad have suffered considerably from the vibration caused by passing trains. In the case of the concrete building the tracks pass directly in its rear. The builders maintain that its solidity is its principal feature. The foundations were made by driving piles 12 inches apart over the entire plot. On these was constructed a solid floor of concrete 18 inches thick.

The walls of the factory were made first of rough planks nailed to uprights 18 inches apart. Into this trough the mixture was shoveled, pounded and allowed to set for three days. At the end of this time the board walls were knocked off, and the solid wall of hardened concrete remained. The problem of constructing the ceiling over the large machine room, in which are to be the huge rollers transforming the pulp into finished paper, was the most difficult which builders with concrete have yet been called upon to solve.

Huge beams of solid concrete were planned, 51 feet long 30 inches deep and 15 inches wide, to be placed at intervals of 16 feet along the entire distance of 175 feet. To build such an enormous length of unsupported concrete had never been attempted before. Timbers were set up on the floor of the machine room reaching to the level of the ceiling. On these uprights were laid 15-inch planks, and boards 30 inches wide were nailed to them. Into these troughs the concrete was then shoveled. Favoring weather caused these beams to set in less than three days. The uprights were knocked from underneath them, the bottom and side planks of the trough dropped off, and the finished concrete beams, over 50 feet in length, were fast to the concrete walls. The only stiffening used was in the form of small iron rods, placed in rows of three in the lower and upper portions of each beam. A wire mesh was then fastened between the beams, half way between the top and bottom. The mold of boards was again put in position, and the ceiling was completed.

The factory was first planned to be a brick and frame building, and an insurance company quoted a rate of 1 per cent. with a full sprinkler system installed. The rate the same company now offer for the concrete structure is one-twentieth of 1 per cent., although no provision has been made for a sprinkler system.

James J. Hill, president of the Northern Securities Company, in a recent interview, made the following statement: "One large milling firm in Minneapolis shipped to Australia between January 1 and November 1, this year, 160,000 barrels of flour. The same firm shipped to China in the same period 29,000 barrels, and has orders for 17,000 more. A single order for 500,000 sacks, and another for 400,000 speak of a large trade. Down here in Wall Street you do not hear of all this, and the only place it shows is in the exchange market. The development of the Pacific trade is worth watching, and Western conditions generally are encouraging."

Manganese Ore as a Desulphurizing Agent in the Foundry.

The coke used in German foundries, even in the Western part of the Empire, where fuel from the Ruhr district is obtainable, is a constant source of trouble to the foundryman, on account of the high percentage of sulphur, that element running from 0.7 to 1.3 per cent. With us the matter is not so serious, but is nevertheless serious enough to make any practical means of desulphurization of interest to the trade.

The use of limestone in the cupola is necessary, not only for the purpose of neutralizing a portion of the sulphur contained in the coke, but also to carry off as slag the sand adhering to the pig iron. The percentage of sulphur taken up by limestone is in reverse proportion to the amount of the latter used, as is shown by the following table, giving the results of actual experiments:

Limestone (per cent. of coke)	0	6.6	13.3	20	26.6	33.3
Sulphur taken up by iron (per cent. of total sulphur in coke)	59	50	35	37	16	14
Amount of slag (per cent. of iron)	2.4	2.9	5.65	6.3	7.9	8.0

From the above it may be seen that under normal circumstances from 20 to 40 per cent. of the sulphur is taken up. An addition of limestone greater than 20 to 25 per cent. of the weight of the coke gives too much slag and the latter becomes so infusible that it is difficult to get rid of it. The lime in the slag should not exceed 28 to 30 per cent., and the silica should be at least 43 to 45 per cent. If these figures are exceeded it is almost impossible to work unless the blast is heated. By using iron cast in pig machines or in molds adhering sand is avoided and with it a good deal of trouble, because if there is much sand present it is only possible to have enough bases present to remove sulphur by increasing the quantity of slag. A large body of slag is favorable to desulphurization, as the amount of sulphur which can be taken up is very limited, the maximum proportion in a calcareous slag (25 to 30 per cent. lime) varying from 0.2 to 0.25 per cent. If the quantity of slag exceeds 5 per cent. of the weight of the iron it cannot be handled conveniently and will cause trouble.

A new means of getting rid of the sulphur was proposed by P. Reusch, who, in 1902, described in *Stahl und Eisen* some experiments he had made with manganese ore the year previous. These experiments were made in a small cupola of about 20 inches diameter, using purposely an excess of coke in order to increase the sulphur present. For each experiment 6 cwt. of iron were used in three charges of 2 cwt. each. The bed of coke consisted in each case of 600 pounds, and with each charge 88 pounds more were added. The metal was tapped out in three parts of approximately 200 pounds each and the test for analysis taken when about one-half had run into the ladle.

The iron used on these occasions had the following analysis: Total carbon, 3.81; graphite, 3.07; silicon, 1.93; manganese, 0.92; phosphorus, 0.18, and sulphur, 0.006. The coke showed 11.10 per cent. ash and 0.81 sulphur. The manganese ore was of the following composition: Ferric oxide, 4.10 (Fe, 2.87): manganous oxide, 38.48 (mn, 27.72); alumina, 3.27; lime, 6.71; magnesia, 2.76; phosphoric acid, 0.25 (P, 0.11); volatile matter, 21.63; insoluble residue, 21.25, and sulphuric acid, 0.99 (S, 0.36).

The results were as follows:

Experim't No.	I.			II.			III.		IV.				V.			VI.		
Lime, per c't.	0			2			4		2				4			6		
Ore, per cent.	0			0			0		1				2			3		
Test No.	1.	2.	3.	1.	2.	3.	1.	2.	3.	1.	2.	3.	1.	2.	3.	1.	2.	3.
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Carbon	3.58	3.60	3.50	3.18	3.51	3.45	3.55	3.74	3.70	3.44	3.37	3.60	3.72	3.64	Not analyed.	3.57	3.66	3.55
Silicon	2.04	2.09	2.03	2.07	1.91	1.91	2.09	2.04	2.12	2.12	2.05	2.11	1.91	1.99		1.88	1.96	1.90
Manganese	0.79	0.72	0.72	0.70	0.70	0.68	0.75	0.75	0.77	0.82	0.82	0.82	0.77	0.84		1.02	1.01	0.97
Phosphorus.	0.22	0.22	0.21	0.22	0.24	0.26	0.23	0.22	0.22	0.23	0.25	0.23	0.21	0.20		0.21	0.20	0.20
Sulphur	0.05	0.04	0.056	0.066	0.074	0.080	0.06	0.038	0.045	0.007	0.004	0.006	Trace.	Trace.		Trace.	Trace.	Trace.

Further experiments, covering a long period, have been made by F. Wuest of Aix-la-Chapelle, who writes of the same in a recent number of *Stahl und Eisen*. They were begun October, 1901, in a Herbertz cupola of 32 inches diameter. The charges consisted of 12 cwt. of pig iron, 80 pounds coke, 11 pounds manganese ore and 13 pounds limestone. The ore had the following composition:

	Per cent.		Per cent.
MnO_2	91.00	SiO_2	3.50
Fe_2O_3	0.89	P_2O_5	0.25
CaO	0.63	CO_2	0.80
$CaSO_4$	0.59	Al_2O_3	1.20
$BaSO_4$	0.94		

The tests were carried on continuously from October 30, 1901, until June 22, 1903, analyses being made regularly which gave the following results:

No.	Si.	Mn.	S.	No.	Si.	Mn.	S.
1	2.16	0.86	0.054	23	2.16	0.57	0.040
2	2.21	0.78	0.066	24	2.14	0.59	0.069
3	2.08	1.01	0.132	25	2.03	0.52	0.064
4	2.21	0.74	0.081	26	2.21	0.60	0.055
5	2.08	0.84	0.069	27	2.01	0.72	0.053
6	2.06	0.83	0.071	28	2.25	0.95	0.048
7	2.36	0.75	0.061	29	2.24	0.69	0.044
8	2.08	0.70	0.072	30	2.14	0.95	0.041
9	2.32	0.81	0.085	31	2.18	0.68	0.050
10	2.98	1.00	0.057	32	2.41	0.62	0.046
11	2.26	0.70	0.048	33	2.17	1.02	0.040
12	2.09	0.70	0.066	34	1.94	0.64	0.082
13	2.33	0.89	0.062	35	1.73	0.69	0.089
14	2.10	0.83	0.063	36	1.91	0.59	0.082
15	2.06	0.61	0.042	37	1.69	0.76	0.088
16	2.03	0.59	0.058	38	1.67	0.65	0.074
17	1.89	0.60	0.050	39	1.56	0.57	0.093
18	2.27	0.69	0.044	40	1.74	0.59	0.074
19	1.77	0.66	0.040	41	1.60	0.64	0.099
20	2.16	0.63	0.065	42	1.76	0.76	0.065
21	2.22	0.67	0.063	43	1.89	0.64	0.119
22	2.07	0.66	0.052				

To charges from No. 34 down only 5½ pounds manganese ore was added to each 12 cwt. of iron. The average of the first 33 tests with 11 pounds ore is:

Silicon	2.18
Manganese	0.75
Sulphur	0.0595

while those of the test with 5½ pounds ore gave:

Silicon	1.75
Manganese	0.65
Sulphur	0.0865

These results, obtained regularly over a long period, plainly show that manganese ore is an excellent desulphurizer. Two samples of the slag showed the following analyses:

	May, 1902. Per cent.	May, 1903. Per cent.
SiO_2	54.98	54.06
Al_2O_3	6.05	7.82
FeO	16.91	14.51
MnO	10.72	12.68
CaO	10.12	9.64
MgO	0.37	0.32
S	0.25	0.25

It will be seen that the slag is not very basic, the silica amounting to 55 per cent.; but in spite of this it has taken up a not inconsiderable amount of sulphur. This fact must be ascribed principally to the manganous oxide, although the considerable amount of ferrous oxide was doubtless of assistance in the same direction, while the comparatively small percentage of lime would be of little influence. The high percentage of ferrous oxide shows the strong oxidizing influence of the products of combustion, often containing free oxygen formed in the Herbertz cupola.

It may, furthermore, be seen that the temperature of the furnace was not very high, otherwise the ferrous oxide in the slag would have been reduced by the high percentage of manganese in the iron. A slag must contain considerable oxide of manganese to be sufficiently fluid at this low temperature to avoid trouble.

For the purpose of comparison analyses were made of

185 castings, made by 27 different firms, all using similar coke (from the Ruhr district), and the results arranged in six groups according to the percentage of sulphur, with the result shown in the table below:

Group No.	Sulphur. Per cent.	Number of castings.	Per cent. of total.	Average composition. Si.	Mn.	S.
I	0.040-0.070	21	11.4	1.83	0.59	0.060
II	0.071-0.100	77	41.6	1.71	0.58	0.085
III	0.101-0.130	48	26.0	1.56	0.65	0.114
IV	0.131-0.160	20	10.8	1.69	0.59	0.145
V	0.161-0.190	9	4.8	1.57	0.63	0.173
VI	0.191-0.400	10	5.4	1.60	0.88	0.273
General average.		185	100.0	1.66	0.62	0.111

In contrast to the above tests, which show an average sulphur contents of 0.111 per cent., the castings made when using manganese ore, as shown in the previous table, have an average of 0.064 per cent. sulphur. These same castings, arranged in the same manner, would be divided as follows: In Group I, 65.1 per cent.; in Group II, 30.2 per cent., while Groups III and IV would have 2.3 per cent. (one casting) each.

Should the use of manganese ore be considered undesirable on account of the cost, a fairly efficient substitute can be found by adding to the charge a sufficient amount of high manganese iron (spiegeleisen) to bring the percentage of that metal in the charge to about 1 per cent. Of this a proportion will be oxidized in the furnace to MnO, so that the percentage of the latter in the slag Joseph Wangler, St. Louis.

The Cockerill Gas Engine in the United States.

The Wellman-Seaver-Morgan Company of Cleveland, Ohio, have acquired from the John Cockerill Company of Seraing, Belgium, the exclusive right to manufacture and sell in the United States the Cockerill type of gas engine. They also acquire all of the drawings, plans and other information of the Cockerill Company, as well as the benefit of their experience in the manufacture and use of these engines. An especially valuable feature of the connection is the fact that the Cockerill Company have their own blast furnace, steel works and rolling mills in connection with their engine building shop, making it possible for them to test every new type and modifications of the engines they build, in actual work, before sending them out to their customers.

These engines are suitable for any of the uses for which large power units are required, such as blowing engines for blast furnaces and steel works purposes, electric power plant for both alternating and direct current, rolling mill work, and, in fact, all places requiring heavy, severe and continued service.

With the gas engines the Wellman-Seaver-Morgan Company are prepared to furnish complete installation of all the necessary accessories, such as cleaning, purifying and regulating apparatus.

It may be interesting to note that the last annual report of the Cockerill Company, just issued, contains the statement that the company and their licensees in France, Germany, Austria and England have in operation or under construction 108 engines representing an aggregate of 70,000 horse-power, and that a 3000 horse-power engine is now being built at the Seraing shops.

A new design of centrifugal pump is being developed at the works of Henry R. Worthington, New York, and a machine of the new type is to be ready for exhibition at the Louisiana Purchase Exposition in St. Louis next year. The design is being carefully worked out, many important and novel features being based upon extensive tests of various forms and proportions of parts. The pump is of the type known as multi-stage turbine centrifugal, and is stated to differ in many respects from the forms with which the engineering world is familiar. The new pump may be said to involve a reversal of the principle of the impulse turbine, with the necessary alterations to make the operation efficient and satisfactory. It is stated that the pump to be exhibited at St. Louis will be capable of delivering about 500 gallons of water per minute against a head of 250 feet.

Hand Bench Punches with Steel Plate Frames.

A line of hand punches for bench use, and with frames built up from plate steel, is being made by Henry Pels & Co., 66 and 68 Broad street, New York. The makers of this new type of punch call attention to the frequency with which those made with cast iron frames are injured and broken when used by a muscular operator, perhaps upon work far beyond the proper capacity of the tool. Hand punches are found very useful and valuable in both large and small shops, and it is with a view to producing a strong yet light and portable tool that the line under consideration was designed. As shown in the illustration, the frame is built up of steel plates, the number of which may readily be made to suit the requirements of strength for a punch of any given capacity. These machines are made in two types, one with eccentric lever operation and the other with rack and pinion action. No. 1, of the former type, has 4-inch depth of throat, weighs 32 pounds, and will punch a ¼-inch hole in ¼-inch plate steel. No. 3, of the rack and pinion pattern, has a throat depth of 8 inches, weighs 800 pounds, and is designed to punch a 1 3-16-inch hole in a plate 9-16 inch thick. In all these

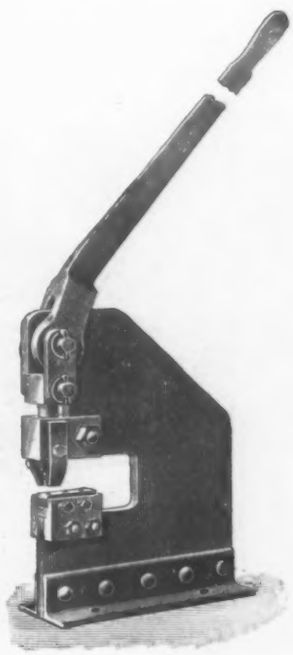


PLATE FRAME HAND PUNCH.

tools the weakest point is in the working mechanism, so that a strain too far above the capacity of the machine will result in breakage of an easily replaced part, rather than in ruin of the main frame.

The Buffalo, Rochester & Pittsburgh Railway Company have just completed the installation at their ore docks in Buffalo of the largest hydraulic ore unloader on the great lakes. Their clamshell buckets have a capacity of 10 tons, and it will unload from hold of vessel and convey to cars ready for shipment at the rate of 500 tons per hour. The cost of the machine was approximately $100,000. With the installation of the new unloader the capacity of the Rochester & Pittsburgh Coal & Iron Company's furnace at Du Bois, Pa., will be greatly increased.

The Strow & Patchell Machine & Foundry Company of Charleston, W. Va., are about to build a new foundry. Plans are prepared and the specifications for equipment will soon be ready. The company were recently incorporated under the laws of West Virginia. They do a general machine repair business, making a specialty of rebuilding locomotives. The officers of the company are: D. H. Patchell, president; Moses W. Donnally, secretary; H. Morris, Jr., treasurer, and H. S. Strow, general manager.

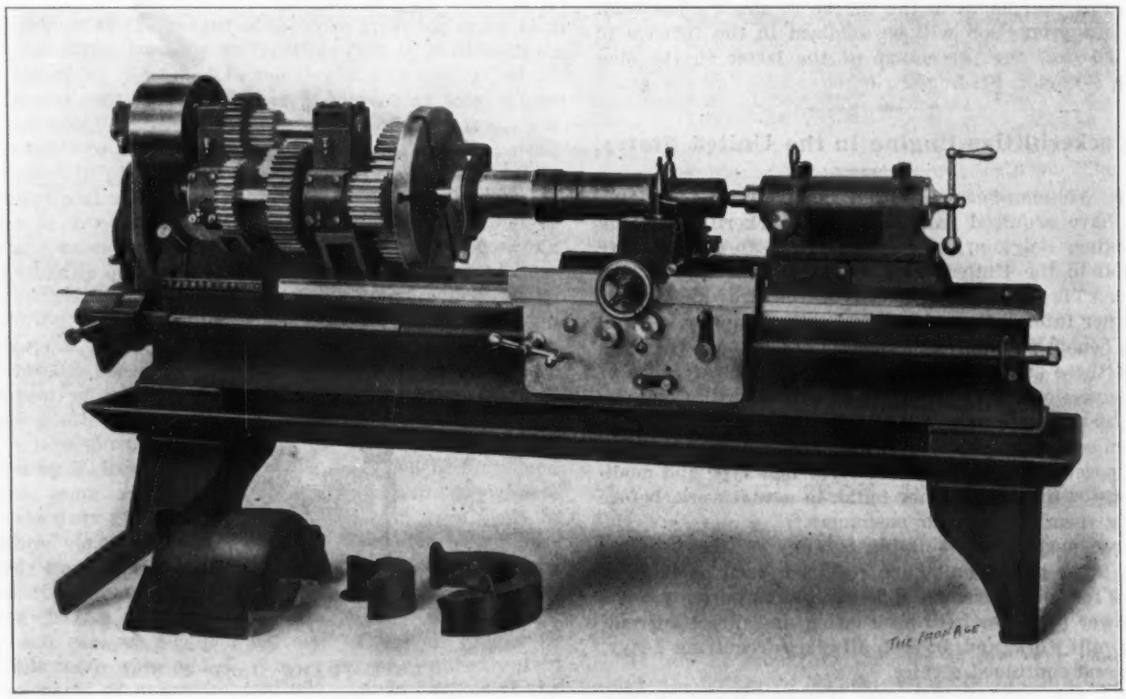
The Lodge & Shipley High Speed Lathe.

In view of the increased use of the new high duty tool steels and the resultant demand for high powered rapid reduction lathes, the Lodge & Shipley Machine Tool Company of Cincinnati, Ohio, have just completed a new form of drive. It is shown in the accompanying engraving, mounted on one of their standard 20-inch lathes. It will be noted that the drive consists of a double train of gearing, which supplants the cone pulley and transmits the power directly from a single driving pulley to the face plate.

The driving pulley is 12 inches in diameter and of 6 inches face. On the same shaft with this pulley there are two sliding gears which, driving into the next shaft, give ratios of 3 to 1 and 9 to 1. The latter shaft is geared directly into the face plate, thereby giving a very great amount of power. The principal feature of this form of drive is that it obviates the necessity of revolving a cone on the spindle at a tremendously high speed. All bearings are self oiling.

It will be observed that the tail stock is of exceptionally heavy design, having four large bolts running up over the top of the bearings. The spindle is 2⅞ inches in diameter. Two tools are employed, one cutting from in front and the other in back of the bar. The cross feeds are controlled by the hand wheel and the small crank handle shown in its center. Automatic stop gauges for the cross feeds, set by means of thumb screws, are affixed to the cross slide.

An idea of the enormous power of the machine can be gained from a recent performance, when a cut ½ inch deep and ⅛ inch feed was taken off of a 4½-inch bar of machinery steel at the rate of 92 feet per minute.



THE LODGE & SHIPLEY HIGH SPEED LATHE.

The visit of officials of the United States Steel Corporation to the Worcester Works of the American Steel & Wire Company had nothing to do with any contemplated partial shutting down of this plant, as was rumored and so reported in some of the newspapers. President Corey, Vice-President Dickson and Judge Gary had never visited the Worcester Works, and the purpose of the inspection was to give them an idea of the property. The matter of closing down any part of the plant was not even discussed, excepting that it is possible that the steel plant will close down temporarily in December. Of the 6200 employees less than 150 have been laid off, and 500 tons of wire a day are being made, much of it into expensive specialties. It is stated at the Worcester office that the outlook is good for a continuance of busy times at the works.

Thermit in the Foundry.

In the course of a very well attended and successful lecture at Columbia College, New York, on "Aluminothermics," Dr. Hans Goldschmidt of Essen, the inventor, gave some interesting data on the use of "thermit" in the iron and steel foundry. We may note that thermit is a mixture of iron or other oxides and granulated or pulverized aluminum, which on ignition produces great heat without any outside supply. Dr. Goldschmidt's successes in the manufacture of rare alloys and metals and in the welding of iron and steel have been referred to before. We quote as follows from Dr. Goldschmidt's lecture:

One of my associates, Mr. Mathesius, has specially devoted himself to studies concerning the improvement of iron and steel castings. These are obtained by introducing the thermit below the surface of the bath, and so producing a high temperature in one place. A box containing the thermit is fastened to an iron rod and held down on the bottom of the ladle.

For cast iron, and in some cases for steel, a special thermit is used which gives off an alloy of iron with titanium, so that the titanium enters the liquid metal. The reaction takes place all through the contents of the ladle and thoroughly stirs them up in a minute or two. Gases and particles of slag are driven upwards, so that the fluidity of the iron is increased. An increase of the temperature does not in reality take place, as the proportion of added thermit is only ¼ to 1-16 per cent. of the total contents of the ladle. The effect of the titanium is to bind small quantities of nitrogen, to increase the fluidity of the cast iron, and to produce a finer grain.

Not only can cast iron be obtained absolutely free from blow holes by such a reaction, but it is also possible to introduce into the crucible additions of other materials, for instance, of ferromanganese. After a so-called box reaction has been carried out, the manganese, which may, for instance, be assumed as 1 per cent., is found uniformly distributed in the casting. The same method may be used for an addition of nickel for making crucibles used in evaporating caustic alkalies in the chemical industry.

In this case it is better to use the nickel in the form of nickel thermit, which has been ignited previously in a crucible and is then poured into the ladle together with the slag. The nickel is then uniformly mixed in by means of a box reaction. Nickel-thermit, containing 60 per cent. of metallic nickel, is used in a proportion of about 1 per cent. of the contents of the ladle, and with such nickel addition about 50 per cent. more charge can be treated than without nickel.

Another application of the so-called box reaction is important for steel castings, and especially for casting large steel ingots, to prevent the familiar phenomenon of piping. In the heads of such ingots hollow spaces are found which mostly cause 30 to 40 per cent. of scrap.

The thermit process as used for this purpose consists in introducing a box of so-called anti-piping thermit into an ingot with the aid of an iron rod. According to the size of the ingot, the box is suspended about 3 feet. The reaction is completed in this case in a few seconds. The box is introduced, of course, only after the piping has been formed. The head layer, which has already become solid, is broken through for this purpose. Immediately after the reaction is completed, steel, which is held in readiness for this purpose, is poured into the open hole. The method is really very simple, and one learns very quickly at which time to introduce the box. Moreover, the method is very cheap, only about 10 pounds of thermit being required for ingots of 10 to 20 tons weight. After the treatment relatively very small flaws were found, and only in the upper part of the ingot, so that the waste is only a very few per cent.

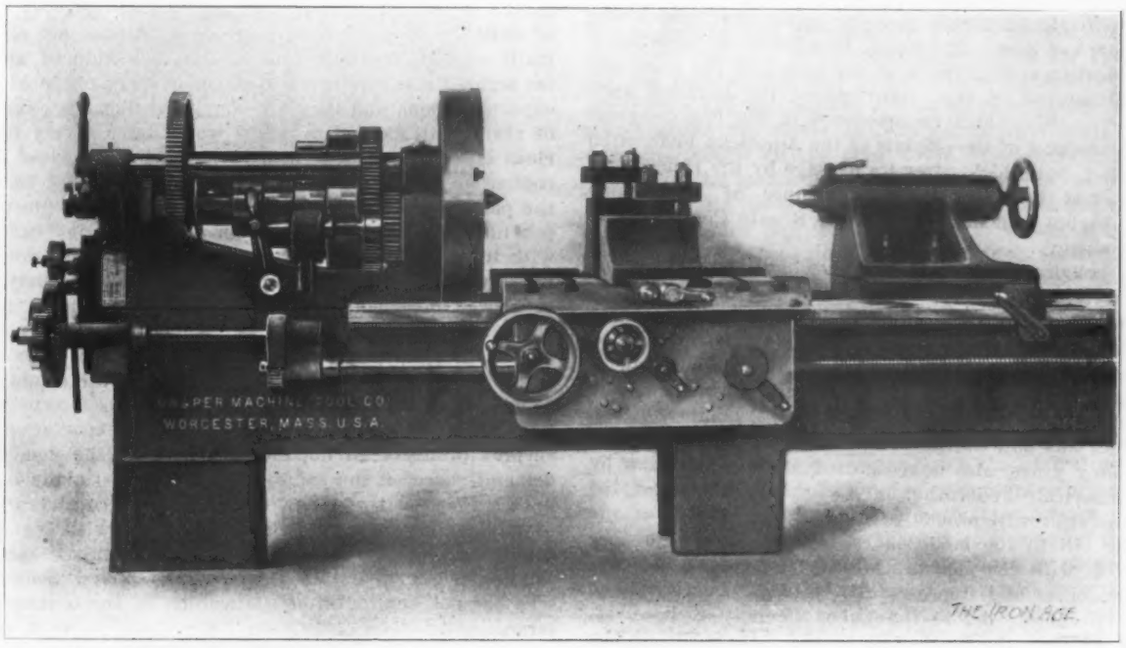
The method has also been applied for very large steel castings to revive steel which has become plastic in the runners. In this the anti-piping thermit is placed at the bottom of some risers, in an annular box with concentric walls, containing about 2½ pounds of thermit. There is, in this case, no need to thrust the box in by means of an iron rod. The piping will not protrude into the piece, but will be kept right at the head of the riser.

The difficult operation of casting long stern posts of vessels can be facilitated by inserting in several places boxes of this thermit. On account of the long way steel has to travel, it has a tendency to grow plastic. But coming into contact with thermit, its temperature and thereby its fluidity is revived.

William Barclay Parsons, chief engineer of the New York City Rapid Transit Commission, announced last week that all the excavating for the subway from City Hall to 190th street had been completed, the last two remaining heads—the one at Leonard street and the one at Seventy-seventh street—having been removed almost simultaneously. At this rate of progress, the engineer stated positively that the company would be running experimental trains through the entire subway some time next month, and would have the line open for the public to 104th street by March. The entire system, however, will not be in shape for operation before October 1.

A Draper Special Crank Pin Lathe.

The Draper Machine Tool Company of Worcester, Mass., have delivered to the Locomotive & Machine Company of Montreal a special lathe for turning crank pins. An unusual feature is that although the lathe swings only 24 inches, triple gearing is provided. Both the triple gear and the regular back gear are placed at the front of the lathe, thus bringing the pressures downward in the bearings and against the cutting tool. The ratio of the back gearing is 8.52 to 1, and that of the triple gearing is 31.8 to 1. The face plate is internally geared for driving by the triple gearing. The carriage has the unusual length of 34 inches and carries two heavy tool posts, with clamping blocks, each provided with independent power cross feed. The largest step of the five-step cone is 16½ inches in diameter, and the face width of all steps is 3⅝ inches. With a 12-foot bed, the lathe complete weighs 6825 pounds. It is a heavy and rigid tool, built for powerful, rapid and accurate work of the special nature for which it was designed.



SPECIAL 24-INCH TRIPLE GEARED LATHE FOR TURNING CRANK PINS.

The Cleveland-Cliffs Iron Company, Cleveland, Ohio, have recently purchased 60,000 acres of land in the region of their present extensive holdings in the upper peninsula of Michigan. All the pine timber has been removed, but considerable maple and spruce remain, which will be utilized in the manufacture of pulp and charcoal for the paper mill at Munising, Mich., and the pig iron furnaces at Marquette.

The Pennsylvania Railroad Company are putting the finishing touches on a passenger car of new design in their Altoona shops. The sides, frames and floor of the car are of steel. The inside of the car is covered by a thick layer of asbestos. Very little wood is used. It is designed to be wreck proof as well as fire proof, and will be tested shortly on the main line of the Pennsylvania Railroad.

Outlook for National Eight-Hour Legislation.

WASHINGTON, D. C., November 17, 1903.—During the first week of Congress no less than four measures were presented dealing with the question of hours of labor in private establishments, and it is clearly evident that manufacturers must prepare to resist a strong movement initiated by the representatives of organized labor to pass a drastic and wholly obnoxious eight-hour bill.

Character of Bills Introduced.

The measures referred to include an eight-hour bill presented in the Senate by Mr. McComas of Maryland, chairman of the Committee on Education and Labor, and in the House by Mr. Little of Arkansas, identical with the bill as favorably reported by the Senate committee in the last Congress; an eight-hour bill drawn by Mr. Sulzer of New York, somewhat along the lines of the original eight-hour bill as passed by the House four years ago; and a joint resolution presented by Mr. Lovering of Massachusetts providing for an amendment to the Constitution giving to Congress the right to control the hours of labor in the States, a measure drawn in the interest of certain New England industries which are now meeting with strong competition in Southern States, where the hours of labor are longer. In addition to these measures dealing specifically with the length of the work day Mr. Grosvenor of Ohio reintroduced the so-called anti-injunction bill which he presented in the last Congress at the request of the officials of the American Federation of Labor, but which, after its passage by the House, was abandoned by its promoters because of undesirable amendments attached to it by the Senate Committee on the Judiciary.

Although these various measures have been introduced and referred to appropriate committees, the authorized bill upon which the eight-hour campaign will probably be waged has not yet been presented. This bill will be introduced by Mr. Gardner of New Jersey, chairman of the House Committee on Labor in the last Congress, who will undoubtedly be reassigned to his old committee. Mr. Gardner has had charge of this legislation in the House for many years, and is recognized as its spokesman by the American Federation of Labor. The text of the Gardner bill will probably be the same as that of the Senate bill in the last Congress, and will therefore be identical with the measure already introduced by Senator McComas and Representative Little. There will be a sharp contest before the Labor Committee, however, as to whether the Little bill or the Sulzer bill or the Gardner bill shall be selected as the basis of action, but it is already a foregone conclusion that to Mr. Gardner will be conceded the honor of naming the bill.

Manufacturing Interests Will Demand Hearings.

The promptness with which Senator McComas introduced his bill at the beginning of the special session has set certain disquieting rumors on foot, and among other things it is reported that he intends to ask his committee to send it to the Senate at once without awaiting the action of the House. While there is no constitutional objection to such procedure, nevertheless this bill has invariably been considered and passed by the House before it has been taken up by the Senate, and that is recognized as the orderly course to be pursued. Should Senator McComas undertake to advance the bill by asking for an immediate report such action would be regarded as arbitrary and without precedent, and would undoubtedly be resisted by certain members of the Senate Committee on Education and Labor, upon which there are now three vacancies, which cannot be filled until the special committee appointed for that purpose has completed the reorganization of the Senate, a task that will probably occupy the next fortnight.

The important manufacturing interests which have heretofore strenuously opposed the eight-hour bill will demand hearings before both House and Senate committees. In the House this demand will be based upon the fact that this is a new Congress, with a very large proportion of new members who know nothing of the proposed legislation, and that the bill now being urged is entirely different from that heretofore considered by the House committee. As to the Senate committee, it will be pointed out that there was a strong minority against the bill in the last Congress, and that with three vacancies to be filled the opponents of the measure are entitled to have their side of the case again presented in detail. As to both committees, it will be urged that a very important change in public sentiment has taken place within the past few months regarding this class of legislation, a fact which leaders in both houses of Congress freely concede. The most active opponents of the bill will be the representatives of prominent iron and steel concerns, leading shipyards and the comprehensive industrial interests covered by the National Association of Manufacturers.

Injury to the Export Trade.

Because of the very evident effort now being made to take advantage of the special session to advance the position of the eight-hour bill with a view to securing its early enactment, manufacturers throughout the country are paying close attention to the measure. A special feature, not heretofore given much consideration, but now being regarded with some apprehension, is the bearing which the passage of such a bill would have upon our future export trade. The fact that in nearly every line of industry production now equals, if it does not materially exceed, domestic consumption has induced many far sighted manufacturers to consider every phase of the export problem, and they are convinced that the passage of such a bill as that proposed would have a very injurious effect. The labor leaders long ago abandoned the contention that the shorter work day would not reduce the per capita output or increase the cost of production per unit, as the demand for an eight-hour day carries with it the condition that there shall be no reduction in the day's wages. Production being controlled largely by the speed of machinery, which the labor leaders now claim is at the maximum, it is obvious that if the pending bill accomplishes its purpose—namely, to force the adoption of an eight-hour day in many private establishments—the labor cost of the output of such concerns will be so materially increased as to make the exportation of surplus products an impossibility. While the domestic demand exceeded the supply, as it has in so many lines during the past two years, this was not a consideration of vital importance, but it is natural that with changed conditions it should give much concern not only to manufacturers, but to astute Representatives and Senators who are not unmindful of the welfare of the country at large.

W. L. C.

A California Power Plant.

At the Nimshew power house of the Valley Counties Power Company, a subcompany of the California Gas & Electric Corporation, the first two machines have begun operation, feeding into the transmission line of the Bay Counties Power Company. The power house is located in the Butte Creek Cañon, 24 miles from Chico, Cal. The available total head of water is 1531 feet, taken down in one pipe line 6200 feet long, and tapering in three sections from 30 to 28½ inches in diameter. Within the power house the pipe terminates in a Y, each branch of the Y supplying a 3700 horse-power water wheel, the largest wheels operated as yet by one single jet of water.

The generators are of the Stanley Electric Company's make, the rotary element mounted on one single shaft with the water wheel; the entire hydro-electric unit runs in two bearings, the rotary element of the generator between the bearings and the water wheel overhung. The shaft and disk are nickel steel forgings, made by the Bethlehem Steel Company, the shaft being hollow forged and oil tempered, and the buckets are steel castings of the patented ellipsoidal type. The total weight of the revolving part of each unit is over 40 tons; the speed, 240 revolutions per minute.

Each water wheel is provided with a Doble patented needle, regulating deflecting nozzle and hydraulically operated piston gate, a Lombard type D governor with electric speed controller taking care of the sudden fluctuations of the load by deflecting the nozzle, whereas the regulating needle is operated by hand and set according

to the average load of the respective hours of the day. The hydraulic machinery, including the shaft, bearings and gates, was designed and built by the Abner Doble Company of San Francisco.

A Special Reaming Machine.

Much annoyance was formerly experienced at the works of the Bickford Drill & Tool Company, Cincinnati, Ohio, in reaming out the bearings for spindle sleeves in

A SPECIAL REAMING MACHINE.

the heads of their radial drilling machines. On the larger sizes of these machines the bearings run as large as 4½ inches in diamter. With the ordinary methods of hand reaming, by means of a wrench and screw feed, two men consumed about two hours in finishing each bearing. For performing this work more economically H. M. Norris, chief engineer and works manager of the company, designed a special tool, which is of novel construction and effects a great saving of time and labor. A bearing is reamed in 20 minutes with this machine, the operation requiring scarcely any attention.

The machine consists of two parts, one for holding the work and the other for driving the reamer. The former, as shown in the engraving, allows for holding the work in the same position as that occupied by the head when mounted in place upon the arm of the radial driller. The driving mechanism consists essentially of a worm and worm wheel, the former mounted upon one end of the belted countershaft, and the worm wheel mounted upon the splined vertical shaft, which is connected through universal joints to the screw shank of the reamer. As the upper bearing of this particular piece of work is a babbitted one, it is made to serve in connection with the screw shank in feeding the reamer. After the reamer and screw shank have been dropped through to the lower bearing, which is to be reamed, a bushing and a split nut are fastened into the upper bearing. Then upon starting the machine the reamer is fed downward into the work. The reamer rotates 12 revolutions per minute, and the screw having six threads per inch a feed of 2 inches per minute is obtained. Two cuts are taken, the first or roughing cut being made downward with a right hand reamer, which is removed after passing through the work and is replaced by a left hand reamer for a finishing cut upward, when the direction of motion of the machine is reversed. This practice of feeding first downward and then upward through the work not only saves the time required for backing out the reamer, but also is believed to be conducive to accuracy. The splined shaft passing through the worm wheel above the universal joint section is connected to a counterweight on the floor above, thus balancing the weight of the mechanism and facilitating its manipulation. The success of the machine on the work for which it was designed has led to its use in connection with other work. Where the work itself does not furnish means of fastening the feeding device, the same bushing and split nut are inserted within a special bearing supported by a bracket fastened to the stand holding the work.

Industrial Conditions in the Indiana Gas Belt.

With the discovery of natural gas the central part of Indiana became one of the greatest manufacturing centers in the world, dotted as it is with glass factories, iron mills, tin plate factories, furniture factories and a variety of other industrial concerns attracted by a cheap and plentiful fuel. The exhaustion of this fuel threatens to dethrone the Indiana gas belt from its high place in the industrial world. Fortunately, however, Indiana is as rich in coal as she was in natural gas, but the change from the one fuel to the other means a great expense for new equipment. The question of transportation of coal in needed large quantities has also to be faced by manufacturers, who, outside of fuel considerations, might prefer to be nearer the sources of their raw material. Many to whom a gas fuel is vital have put in producer gas plants. Others, who have decided to remain in Indiana and use coal, have purchased coal lands, so as to be certain of a continued and sufficient supply. A number of large manufacturers in the gas belt are attempting to get over the transportation problem by discussing the formation of a company to purchase the old Midland Railroad, now the Central Indiana, owned jointly by the Big Four and the Pennsylvania companies, and convert it exclusively into a coal carrying road.

The Boston & Albany Division of the New York Central Railroad are to equip the short Newton Lower Falls branch with a trolley system for purposes of economy. At present an engine and one car are required to handle this traffic, which is expensive. The company will buy their power. This is the first instance of the Boston & Albany adopting electric motive power. The officials of the road state that it is not an experiment with a view to equipping other branches but merely an instance where a trolley line will be vastly cheaper than steam. However, there are other short branches on the system where it is believed electric traction would also be the cheaper.

Report on Army Ordnance.

Important Recommendations Submitted by General Crozier.

WASHINGTON, D. C., November 17, 1903.—Gen. William Crozier, chief of the Bureau of Ordnance, has forwarded to the Secretary of War his annual report upon the work of the bureau during the past fiscal year. In addition to very gratifying progress in the efforts being made to standardize the small army, field artillery and coast defense guns, the bureau has conducted a series of interesting tests at the Watervliet and Watertown arsenals for the purpose of developing high speed tool steels and of determining the relative efficiency of carbon and nickel steels for gun and carriage forgings. An important feature of the report that will doubtless attract much attention is a recommendation made with reference to coast defenses for our insular possessions, a suggestion that opens up an interesting field to manufacturers and inventors. Following is an abstract of General Crozier's report:

During the past year the model of a new magazine rifle has been perfected, designed for all arms of the service. It has a barrel but 24 inches in length, enabling the carbine to be dispensed with. The Department is making a special effort to develop a thoroughly efficient automatic musket, but no model of satisfactory mechanical action has been presented to the bureau. Experiments with automatic pistols and their trial in the hands of troops have continued during the year. The Department will continue to give attention to this subject, which is more advanced than that of the automatic musket.

Big Guns for Coast Defense.

The first 16-inch gun for coast defense has been completed, and its proof firing has been attended with entire success. At the fourth round with a charge of 640 pounds of Du Pont's smokeless powder and a 2400-pound projectile, a velocity of 2317 feet per second, with a pressure of 36,700 pounds per square inch was attained. That the design and construction of such a huge weapon should be successfully accomplished without a mishap of any kind and that the calculated ballistic results should be so accurately verified are subjects of gratification. The use of smokeless powder in such large charges was beyond the experience of the world, and the demonstration that it would when so used follow the same law of burning as with charges of the size previously employed is a service to the art of the construction of ordnance. Whether this gun will be reproduced for use in seacoast fortifications is a matter still to be determined.

Work upon the new 3-inch field artillery is progressing satisfactorily at the Rock Island Arsenal, although much difficulty has been encountered in procuring the necessary high grade steel. The work of manufacture, in connection with the work required for gauges, test tools and models, has necessitated the employment of a higher class of machinists, and a consequent increase in the average rate of pay. The use of pressed steel for many of the parts of the new carriages, limbers and caissons required the purchase of hydraulic presses for its manufacture. The work of manufacture has, however, not been delayed for the lack of these tools, arrangements having been made for the limited use of hydraulic presses in the vicinity.

An Automobile Forge.

With a view to ascertaining the merits of power transportation for artillery wagons the Department has purchased during the year, under specifications prepared by it, an automobile battery wagon and forge. This wagon was selected for such equipment, as it is generally parked near lines of communication and is not required to traverse country of the character likely to be encountered by pieces in taking position for engagement. It is a combined supply and store wagon and workshop, and is equipped with a gasoline engine of a rated capacity of 28 horse-power, of the four-cylinder type. The maximum speed developed is about 12 miles per hour, insuring, it is thought, power enough to transport the wagon at reduced rates of sped over all kinds of ground. At the front end of the wagon a winch has been provided with suitable connections to the engine to pull the wagon forward if it should happen to be stalled in the mud. Machinists', carpenters', saddlers' and farriers' tools and supplies and spare parts in sufficient quantities are carried. The weight of the wagon, loaded, will be about 10,000 pounds. Upon the receipt of the wagon, which is expected in a short time, a series of experiments in the field will be made, from which useful results are expected.

The progress in the development and manufacture of coast defense guns and ammunition during the past year has been entirely satisfactory. A number of rapid fire 6-inch guns have been completed and have developed a velocity of 2600 feet per second. One high power 12-inch breech loading rifle, model of 1900, has been mounted in New York harbor and tested. This gun, firing a projectile weighing 1048 pounds with a velocity of 2550 feet per second, has a calculated muzzle penetration of 37 inches of face hardened armor. Two more guns of this type are completed, and eight are nearing completion. The development in high powered guns of large caliber in recent years may be shown by comparing the muzzle energies of the 12-inch breech loading rifle, model of 1888, using brown powder, and the same for the 12-inch breech loading rifle, model of 1900. The model 1888 gun gave 28,000 foot-tons of energy at the muzzle, while the model 1900 gives 45,000 foot-tons, an increase of about 60 per cent.

The manufacture of smokeless powder is progressing satisfactorily. No modification of the composition has been made and the results obtained, although not as good as are hoped for, are believed to be equal to those given by any powder made abroad.

Gun Carriages by Contract.

The manufacture of seacoast carriages during the year has progressed without interruption to the extent permitted by appropriations made at the last session of Congress for the purpose. In addition to the limited number of carriages being manufactured at Watertown Arsenal, contracts exist with the following private manufacturers, viz.: For 15-pounder guns, carriages and ammunition, with the Driggs-Seabury Gun & Ammunition Company and the Bethlehem Steel Company; for 6-inch barbette carriages, model of 1900, with the Builders Iron Foundry; and for 12-inch disappearing carriages, with the Midvale Steel Company.

The manufacture of 6-inch barbette carriages has been delayed somewhat by the failure of American spring makers to furnish satisfactory counter recoil springs, and to a certain extent the delivery of the carriages has been interfered with by the unsuccessful efforts of the Department to procure shields for them at satisfactory prices.

The heavy armament of the seacoast defense is in a very satisfactory state of advancement, and the bureau therefore is not submitting this year any estimates for forgings for heavy guns and is contemplating building only two carriages for heavy guns which are in course of construction.

Defenses for Insular Possessions.

The importance of putting the insular possessions of the United States into a state of defense is urged, and in this connection General Crozier says:

> Although it may be a question as to the extent to which the Philippine Islands may be required to endure the expense necessary for the maintenance of peace and security and civil order therein, it would seem undoubtedly that that which is due to their equipment as an outpost guarding the interests of the United States in the Far East should be borne by the general Government. Estimates for commencing the work of armament of seacoast fortifications therein will be submitted, which will be less in amount because of some useful guns already on hand and available.

High Speed Tool Steel.

Tests of various high speed tool steels were conducted at Watervliet Arsenal during the year. The usual cutting speed for rough turning and boring oil tempered forgings has been about 8 feet a minute, with a feed of 0.08 inch in turning and 0.03 inch in boring, the depth of the cut varying according to the amount of metal to be removed. With high speed tools now in use the cutting speed for rough boring has been increased to 15 to 18 feet a minute, and for rough turning to 18 to 26 feet

a minute, the feed remaining the same, and it has been found that even with these speeds the tools do not require regrinding as often as formerly. The adoption of high speed tool steel has, therefore, resulted in a material saving of time and expense in the machining of all sizes of gun forgings, but it is greater in the case of large forgings, where the time of setting forms a smaller and the actual cutting time forms a large percentage of the total time required to finish the piece. In the case of small pieces the average saving amounts to 10 to 20 per cent., and in large forgings from 20 to 40 per cent. A further saving is made in the case of the larger calibers of guns by turning the outside while finish boring is in progress. This was impossible formerly, since the rate of rotating of the gun required to obtain a proper boring speed gave a turning speed which was beyond the capacity of the tools. Very good results have been obtained with these steels in finish turning the outside surfaces of guns, but a satisfactory shrinkage surface cannot be obtained with a cutting speed greatly above that at which tempering tools may be run. Owing to the high first cost of this steel, the savings resulting from its use will not be apparent until the shops are completely supplied with tools made of it, but in the long run material economies will result.

Considerable delay has been experienced by the Department in procuring material for the manufacture of carriages at the Watertown Arsenal, especially in the procuring of steel castings. This lack of ability to procure steel castings, especially for repairs, and the delay incident thereto, has caused the Department to take measures to install a small steel casting plant of about 2 tons capacity at this arsenal, which, it is hoped, will be in running order during the early part of the next fiscal year.

Carbon and Nickel Steel.

Respecting investigations of the relative qualities of carbon and nickel steels conducted at the Watertown Arsenal, current statements have met with further confirmation in the present series of tests—*i. e.*, that higher elastic limit and tensile strength, accompanied by toughness, result from the addition of nickel to the metal. Under repeated alternate stresses of tension and compression the two steels behave in a similar manner, and ultimate rupture may be accomplished in each without the display of sensible elongation or contraction of area. The properties of a given steel are so modified by heat and mechanical treatment that special attention has been given to it, as found in its natural state in the ingot. In these tests attention has been directed to local spots of weakness, which, in the specimens thus far tested, have been more frequently encountered in nickel steel than in carbon steel. These local defects appear after the metal has been ruptured as bands or streaks of light colored metal, with smooth, splendent surfaces. Their presence has not been explained, nor has any difference in the structure or chemical composition been accounted for. So far as known, heat treatment of the metal by annealing at a suitable temperature, while improving the metal as a whole, does not modify the deleterious influence of these local defects. W. L. C.

Dispatches from Birmingham, Ala., state that the Louisville & Nashville Railroad has received and accepted 150 cars of steel rails from the Ensley plant of the Tennessee Coal, Iron & Railway Company, which will be laid on its Altoona branch, now being constructed. This is said to be the first time in the history of the South that a Southern railroad has received Southern made steel rails for extensive use. The consignment is a portion of 30,000 tons for the road, to be made at the Ensley plant.

At the convention of the International Union of Elevator Constructors, held in New York last September, it was resolved that the union issue a monthly journal to contain matters of interest to their craft. The initial number is just out. General Secretary-Treasurer Henry Snow, Chicago, is the editor.

Ore Production Smaller in 1904.

DULUTH, MINN., November 14, 1903.—So much ore is in stock at lower lake points, especially at Conneaut, that it is quite possible the production of 1904 will be comparatively small. It is understood to be the policy of steel interests to use up most of the ore on hand before shipping as heavily as in the recent past. Ore is piled about Conneaut that was taken down the lakes more than a year ago, and the vicinity of the docks there is crowded with ores of all grades. Restrictions at furnaces will have a very decided influence on stocks at these lower lake points. About half a dozen mines of the Mesaba still forward ore, and possibly twice as many on other ranges. Every mine of the Vermillion is down. The great mines of the United States Steel Corporation have shipped as follows, according to figures furnished *The Iron Age* to-day by First Vice-President James Gayley:

Mesaba range: Fayal mine, 1,460,815 tons; Adams, 1,109,798 tons, and Spruce, 585,815 tons. The two last should be classed as one mine and are so in general results given by the company. With the exception of a milling pit their product is all hoisted. Mountain Iron, 1,342,697 tons; Hull, 433,302 tons; Burt, 631,-147 tons.

Vermillion range: Chandler, 460,548 tons; Pioneer, 596,780 tons.

Gogebic range: Norrie, 700,891 tons.

Marquette range: Lake Superior group, 620,000 tons.

Menominee range: Chapin, 704,114 tons; Aragon, 522,035 tons.

These are not, of course, all the mines of the corporation, or a majority of them. They include simply the big shippers. The list is unique, in that no other country can furnish anything like it, and in that it is all from one company. The total Minnesota shipments by the Corporation were 9,226,815 tons, against 10,571,260 tons for the season of 1902.

Operations on the Menominee Range.

Metropolitan, in the Felch Mountain country, Menominee range, does not appear to share the quiet that has overtaken many mines of that district. This is odd, as the village had not been active as a mining section for many years until within the past few months, when G. A. St. Clair, of Duluth, began working there in the old and abandoned mines. At the Metropolitan, Northern and Calumet mines underground work is to be very active all winter. Northern has ceased shipping and is now stockpiling. There is no local unemployed labor, and more men are getting to work in the mines daily.

At Great Western Mine, Crystal Falls, the pumps have been pulled and the workings are filled with water. A serious cave in has taken place about the shaft, and it is expected that it will cause much trouble.

Exploration on the Gibson Mine, by the Oliver Iron Mining Company, has ceased, as late results were most unsatisfactory, and the option is surrendered. The company have worked under this option about four years and have done a most thorough job. The property has been peculiarly encouraging at all times, leading on by the highest promise of ore in quantity and high grade just ahead.

The Marquette Range.

Cleveland-Cliffs Lake mine, at Ishpeming, is to be equipped with a fine new power station of the latest design in a stone building. Fuel will be fed by mechanical stokers. The hoist will be a Sullivan, with 7-foot drums, driven by a 20 x 42 Corliss engine. A 50-drill Nordberg compressor will be installed. The new 400-foot vertical shaft close by the station will be topped by a steel head frame. At this mine they have a distance of 3000 feet from some stopes to the shaft, and tramming is done by electric power. Ore is mined on the second and third levels. The mine is under old Lake Angeline, and there is still occasional trouble from the breaking through of the soft cream-like mud of the lake bed, which is still as soft as ever, though the lake was pumped dry seven or eight years ago. The grade of the ore is not so high as had been expected, but the mine contains a large amount of ore.

Explorations by drill are to be renewed at Barasa mine by the operating company. This property has been under exploration by both the Oliver and Cleveland-Cliffs

companies, who found nothing to warrant taking the property.

Republic mine has cleaned up its stock pile, and is closed for the winter as far as shipments are concerned.

Hemlock, at Amasa, is increasing its underground force, and will operate heavily through the season, stocking a large amount of ore.

Copper Mining Notes.

In the lake copper country mines are cleaning up their docks. Not a smelter on the lake has any copper on hand, while the Calumet & Hecla Company are shipping mineral to their Buffalo smelters as fast as possible. Copper shipments from Lake Superior, for the season of navigation, have been, to November 1, for 1903, 91,658 tons; 1902, 97,056 tons; 1901, 83,212 tons; 1900, 110,423 tons.

A new mine, the Michigan, has just entered the list in Ontonagon County, whose first rock is now going to Mass mine mill. It will operate one head at that mill until a mill of its own is ready. Michigan is the reorganization of old Minnesota mine, which in early days of lake mining produced copper enough to pay nearly $2,000,000 in dividends. It is noted from the fact that the largest mass of native copper ever seen on Lake Superior, 540 tons weight, was found in its underground workings, where it had been left by prehistoric miners. Their attempts to move the great mass with their skids underneath and their cuttings from it were easily observable by the miners who found it.

Lake stockholders in the Bisbee, Arizona, group of copper properties have been much interested this week over developments in the Lake Superior Pittsburgh, whose south drift, 1000-foot level, has been in good copper for some time. On Friday the average of the breast of the drift was 34 per cent. copper, and for a week it has been from 7 per cent. up. Calumet & Arizona, the original mine of this group, is making an average of 2,550,000 pounds of copper monthly, and this week cut rich ores in several points on the 1150-foot level. D. E. W.

Suit has been entered against the Pennsylvania Steel Company, at Harrisburg, Pa., the result of which will determine the right of a company to dump slag into a running stream, thereby changing the course of the current. The company are alleged to have so obstructed the flow of the Susquehanna River at Steelton by deposits of slag from the furnaces there as to cause serious damage to an island in the stream.

Hot Water Meters in Boiler Plant Practice.

BY JOHN A. DREW.

Every engineer who has control of a boiler plant must feel the necessity for having some simple device by which the amount of water fed to the boiler can be accurately measured. With such an appliance at hand it becomes an easy matter to test the evaporative values of various coals with a view to determining which is the most economical in developing power.

There was a time when it was not necessary to keep a close record of the cost of operation of large power plants, but now the ever increasing competition and the necessity of lowering the cost of production demand the very closest scrutiny into every possible source of economy. With the introduction of electricity and the consequent installation of large central power stations, and in large manufacturing establishments where the cost of power is an important item in the cost of the product, a very careful record should be kept of the performance of the boiler plant, and there are probably few plants to-day that do not keep close records of coal consumption. But

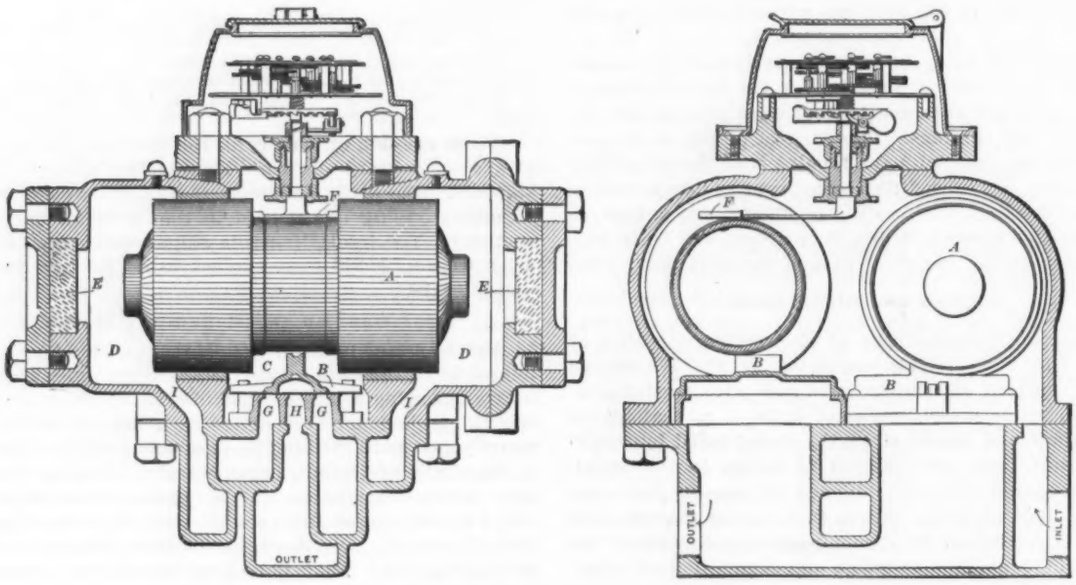


Fig. 1.—Worthington Duplex Water Meter.

HOT WATER METERS IN BOILER PLANT PRACTICE.

while this is valuable information in itself, it gives only part of the data that should be obtained. If the amount of water evaporated is not known, there is no way of separating the performance of the boiler itself from the rest of the plant. This separation is important, indicating, as it does, the efficiency of the boilers; it shows when the boiler is affected by scale or soot and determines the most economical fuel, as well as the best method of firing, either by hand or by mechanical stokers.

In the past, the customary method of determining the amount of boiler feed water has been by weighing or measuring it. This is a very laborious method, even for short tests, and is utterly impracticable for daily work. The use of the feed water meter, on account of its simplicity and reliability in evaporative tests, is now quite generally adopted by engineers for daily work, as well as for trial tests.

Among the more reliable test meters are those of the positive displacement type, a well-known example of which is that introduced about 50 years ago by Henry R. Worthington. In this meter were embodied the principles of the duplex pump, previously invented by Mr. Worthington. As shown in Fig. 1, two double acting pistons are arranged in parallel cylinders, each by its motion operating the valve of the other piston. Since no water can pass through the meter without complete strokes of the pistons, all the water is accurately measured. The strokes of the piston are counted by a train of

gears moving pointers upon a dial face, thus indicating directly the amount of water used. At the end of each stroke the piston is brought to rest by an adjustable buffer, which determines the length of the stroke. One or the other of the pistons is constantly in motion, allowing a uniform flow of water, free from pulsation or shock. The meters are noiseless in their performance. They are designed and constructed of materials uniformly affected by expansion and contraction in passing water of varied degrees of temperature, thus further assuring their accuracy as measuring devices.

Calibration of one of these duplex meters has shown that its registration varied by only one-fifth of 1 per cent. from the actual tank measurements. This is considered a very satisfactory showing for ordinary every day work. To obtain correct results, these test meters should be properly applied for operation; the size selected should be ample for the service, insuring slow piston speed; pipe conections should be made so that at any time the meter can be cut out for examination or repairs without shutting down the boilers.

Fig. 2 shows in plan and elevation a suitable method of connecting up the meter for purposes of special tests, as well as for every day record. In the illustrations A and B are three-way cocks, for use in directing the water through the meter or around it on the way to the boiler. The angle valve E in the by-pass provides means for calibrating the meter by conducting water to measuring or weighing tanks after its passage through the meter. By this arrangement it is possible to test the meter as frequently as desired. By setting the cocks A and B and breaking the couplings F and C the meter may be removed without interrupting the operation of the boiler plant in any way. C is a gauge for indicating pressure, D is a thermometer for indicating the temperature of the water, H and J are pipe couplings. These connections should all be made of brass.

Correct records of boiler performance may thus be obtained with slight expense and trouble. In these present times, when saving of fuel is sought in every direction, the use of a feed water meter is nearly indispensable to good management and economic operation of boiler plants of moderate as well as large size.

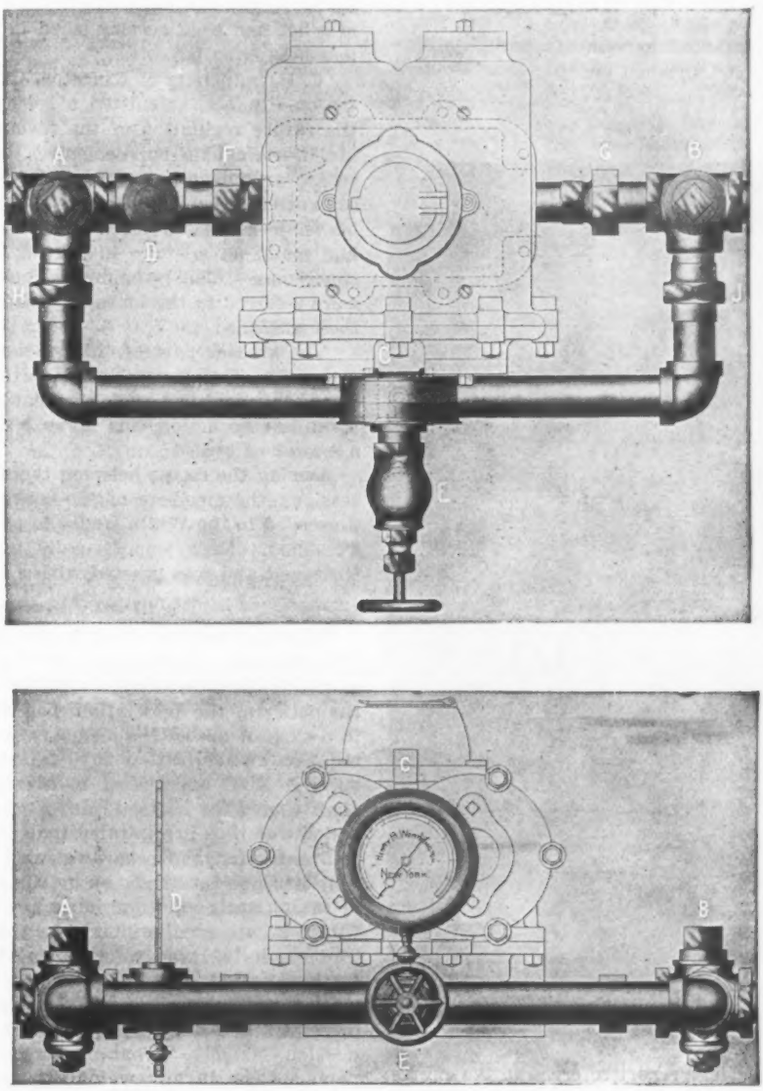


Fig. 2.—Best Method of Piping Up Water Meter.

HOT WATER METERS IN BOILER PLANT PRACTICE.

A combination metallic plate has been recently patented in Germany which is formed by the use of aluminum, copper and soft steel. It may be called cold welding, inasmuch as the aluminum is heated to only 800 degrees in the process. A sheet of copper is roughened in a sand blast and then rubbed with a bar of aluminum; a thin plate of aluminum is then laid on both sides of the copper and heated to 800 degrees conjointly, and put in rolls, which weld the whole homogeneously and produce a plate which has its uses for certain purposes. It is being introduced by the German Wachwitz Metal Company of Hersbruck, Germany.

The National Founders' Association.

SEVENTH ANNUAL CONVENTION,

In our last issue the proceedings were reported of the opening session of the seventh annual convention of the National Founders' Association, on Wednesday, November 11, at the New Willard Hotel, Washington, D. C. The second session was held on Thursday morning, the first business taken up being the report of the Committee on Uniform Agreements. Antonio C. Pessano of Detroit read the report of the committee, in which was detailed the manner in which the committee had endeavored to perform the work intrusted to them. They submitted in connection with the report a book of 75 printed pages, in which they gave the text of agreements made in different localities between foundrymen and the Iron Molders' Union of North America, showing the great variation in

ISAAC W. FRANK, President.

the terms agreed upon. The report referred to the efforts made in conferences with the executive officers of the union to have all limits on day or piece work abolished. The Philadelphia agreement was alluded to as evidence of the success of this movement. On August 4, 1903, the local union of the Iron Molders' Union of North America in that city passed a resolution abolishing the limit existing at that time on the earning capacity of the piece work molders under their jurisdiction. The action of this character could be secured was strong evidence that similar action could be had in other localities if the members of the association co-operated with one another in endeavoring to accomplish the purpose.

Mr. Pessano explained that the committee thought it advisable to take up one branch of the trade at a time, and after a uniform agreement was secured in that line to proceed to other branches. A great deal of interesting correspondence with the officers of the Iron Molders' Union was submitted, showing how thoroughly this question had been discussed. The committee suggested the advisability of making all agreements expire on the same day. They recommended that the basic principles contained in the uniform agreement should be maintained in all relations with the Iron Molders' Union. This certainly would be done if a uniform agreement was adopted, leaving the basic rate of wages to be settled according to the conditions prevailing in particular localities. The report was received, thanks were tendered to the committee for the acceptable manner in which they had performed their work, and a motion was adopted that the committee should be continued for the purpose of advancing the interest of the association along the lines which had been undertaken. Another motion was adopted, reaffirming the position taken by the association last year in favor of a uniform agreement in all localities.

Daniel Davenport of Bridgeport, Conn., representing the American Anti-Boycott Association, was introduced and made an address setting forth the objects aimed at by his organization, giving a very interesting statement of what had been accomplished in successfully defending members from boycotts.

C. Bermingham of Kingston, Canada, for the Committee on Finance, submitted a report outlining a plan for the future regulation of the revenues of the association. Mr. Bermingham supplemented the report with a very strong argument in favor of the plans suggested by the committee, in which he showed thorough familiarity with his subject and convinced his hearers that the committee had made no mistake in putting him forward as their spokesman. The recommendations made in this report were referred to the incoming Administrative Council for their guidance.

The greater part of this session was occupied in the discussion of matters relating to the policy of the association, in which subjects of great interest were touched upon, but no action was taken which can be here made a matter of record.

During the recess between the morning and afternoon sessions the members of the convention and their ladies proceeded to the White House to pay their respects to the President. Each was formally introduced to President Roosevelt and was greeted with a hearty handshake.

Closing Session.

The final session of the convention was held on Thursday afternoon. A resolution which caused animated discussion was introduced by a member, proposing to make it the policy of the association that whenever trouble arises in a shop of one of the members and all attempts at conciliation or arbitration have failed, so that a strike ensues, it shall be pressed to a conclusion and the shop shall thereafter be made an open shop. The discussion which was thus precipitated indicated very clearly that a militant spirit had been awakened, and that the general sentiment, so far as shown by the speakers, was in favor of taking such action on labor questions as would in the future secure greater liberty to the individual workman. The resolution was referred to the incoming Administrative Council.

A resolution was offered favoring the adoption of the principles laid down by the Anthracite Coal Strike Commission—namely, "That no person shall be refused employment, or in any way discriminated against, on account of membership or nonmembership in any labor organization; and that there shall be no discrimination against, or interference with, any employee who is not a member of any labor organization by members of such organization." After some discussion it was decided that as the subject matter of this resolution came clearly under the scope of the work of the Committee on Uniform Agreements, it should be referred to that committee, which was accordingly done.

A motion was also adopted requesting the Committee on Uniform Agreements to communicate with each member of the association and ask for his written opinion as to what should be embodied in such an agreement.

O. P. Letchworth of the Committee on Nominations reported a list of names recommended for the several elective offices, on which ballots were separately taken, and all the persons named were elected unanimously, as follows:

President, Isaac W. Frank, United Engineering & Foundry Company, Pittsburgh, Pa.

Vice-President, Antonio C. Pessano, Great Lakes Engineering Works, Detroit, Mich.

Treasurer, State Savings Bank, Detroit, Mich. (John

R. Russel of the Russel Wheel & Foundry Company, Detroit, Mich., who had been treasurer since 1900, declined to serve any longer in this capacity.)

Secretary, A. E. McClintock, Detroit, Mich.

FIRST DISTRICT COMMITTEE.—H. A. Carpenter, chairman, A. Carpenter & Sons Foundry Company, Providence, R. I.; George H. Gibby, vice-chairman, Condor Iron Foundry Company, Boston, Mass.; F. B. Farnsworth, McLagon Foundry Company, New Haven, Conn.; P. E. Wanning, Birmingham Iron Foundry Company, Derby, Conn.; David Hunt, Jr., Baush Machine Tool Company, Springfield, Mass.

SECOND DISTRICT COMMITTEE.—H. Van Atta, chairman, J. L. Mott Iron Works, New York; James McNaughton, vice-chairman, American Locomotive Company, Schenectady, N. Y.; R. C. Oliphant, Trenton Malleable Iron Company, Trenton, N. J.; F. E. Wheeler, International Heater Company, Utica, N. Y.; H. W. Wendt, Buffalo Forge Company, Buffalo, N. Y.

THIRD DISTRICT COMMITTEE.—W. S. Hallowell, chairman, Harrison Safety Boiler Works, Philadelphia, Pa.; W. H. McFadden, vice-chairman, Mackintosh, Hemphill & Co., Pittsburgh, Pa.; Howard Carlton, South Baltimore Foundry, Baltimore, Md.; B. J. Walker, Erie Malleable Iron Company, Erie, Pa.; John E. Harbster, Reading Hardware Company, Reading, Pa.

FOURTH DISTRICT COMMITTEE.—J. D. Leary, chairman, Queen City Foundry Company, Cincinnati, Ohio; W. D. Sayle, vice-chairman, City Foundry Company, Cleveland, Ohio; H. J. Boggis, Taylor & Boggis Foundry Company, Cleveland, Ohio; C. H. Morgan, Morgan Engineering Company, Alliance, Ohio; H. C. Ryding, Lorain Foundry Company, Lorain, Ohio.

FIFTH DISTRICT COMMITTEE.—H. K. McLean, chairman, Link-Belt Machinery Company, Chicago, Ill.; C. R. Stephens, vice-chairman, Moline Plow Company, Moline, Ill.; Ferd. Schwedtmann, Magnetite Foundry Company, St. Louis, Mo.; John L. Ketcham, Brown-Ketcham Iron Works, Indianapolis, Ind.; Robert Vierling, Vierling, McDowell & Co., Chicago, Ill.

SIXTH DISTRICT COMMITTEE.—Irving H. Reynolds, chairman, Allis-Chalmers Company, Milwaukee, Wis.; C. M. Power, vice-chairman, St. Paul Foundry Company, St. Paul, Minn.; T. J. Neacy, Filer & Stowell Company, Milwaukee, Wis.; O. P. Kinnard, Kinnard-Haines Company, Minneapolis, Minn.; H. M. Wallis, J. I. Case Plow Works, Racine, Wis.

SEVENTH DISTRICT COMMITTEE.—W. F. Angus, chairman, Montreal Steel Works, Montreal, Canada; Frederick Nicholls, vice-chairman, Canada Foundry Company, Limited, Toronto, Canada; Charles H. Carrier, Carrier, Laine & Co., Levis, Quebec, Canada; H. Cockshutt, Cockshutt Plow Company, Limited, Brantford, Ontario, Canada; R. J. Whyte, Frost & Wood Company, Limited, Smith Falls, Ontario, Canada.

EIGHTH DISTRICT COMMITTEE.—E. Van Winkle, chairman, E. Van Winkle Gin & Machine Works, Atlanta, Ga.; W. D. Tynes, vice-chairman, Hardie-Tynes Foundry & Machine Company, Birmingham, Ala.; A. D. Schofield, J. S. Schofield's Sons Company, Macon, Ga.; Daniel Smith, Continental Gin Company, Birmingham, Ala.; A. A. De Loach, De Loach Mill Mfg. Company, Atlanta, Ga.

A resolution was adopted requesting the president to tender most profuse thanks to John R. Russel for his long and satisfactory service as treasurer. The president performed this duty in an exceedingly pleasant manner, which was roundly applauded by the convention. Another resolution was adopted expressing deep regret at the absence of President F. T. Towne and voicing acknowledgment of the obligation due him for services rendered to the association during the past year. The convention then adjourned *sine die*, after which the members of the new Administrative Council, which is composed of the chairmen and vice-chairmen of the district committees, together with the president, vice-president and treasurer of the association, held a meeting for the consideration of a number of matters pressing for their attention. One of these was the election of a commissioner to succeed John A. Penton, who had declined to serve any longer in this capacity. O. P. Briggs of the Minneapolis Steel & Machine Company, Minneapolis, Minn., was selected as his successor.

List of Those in Attendance.

Following is a list of the members present:

Isaac W. Frank and C. H. Booth, United Engineering & Foundry Company, Pittsburgh, Pa.
John R. Russel, Russel Wheel & Foundry Company, Detroit, Mich.
W. F. Angus, Montreal Steel Works, Montreal, Quebec.
T. H. Benners, Birmingham Machine & Foundry Company, Birmingham, Ala.
O. P. Briggs, Minneapolis Steel & Machinery Company, Minneapolis, Minn.
Willis Brown, Walker Foundry Company, Erie, Pa.
H. A. Carpenter, A. Carpenter & Sons Foundry Company, Providence, R. I.
W. S. Hallowell, Harrison Safety Boiler Works, Philadelphia.
J. D. Leary, Queen City Foundry Company, Cincinnati, Ohio.
H. K. McLean, Link-Belt Machinery Company, Chicago, Ill.
Irving H. Reynolds, Allis-Chalmers Company, Milwaukee, Wis.
Wm. M. Taylor, Chandler & Taylor Company, Indianapolis, Ind.
R. D Reed, H. B. Smith Company, Westfield, Mass.
H. Van Atta, J. L. Mott Iron Works, New York.
J. H. Webster, Variety Iron Works Company, Cleveland, Ohio.

F. T. TOWNE, Retiring President.

W. H. Pfahler, Abram Cox Stove Company, Philadelphia.
C. Bermingham, Canadian Locomotive Company, Kingston, Ont.
E. A. Watson, Caldwell-Watson Foundry & Machine Company, Birmingham, Ala.
F. E. Wheeler, International Heater Company, Utica, N. Y.
Arthur A. Brown, Rarig Engineering Company, Columbus, Ohio.
Robert Vierling, Vierling, McDowell & Co., Chicago.
O. P. Letchworth and J. C. Bradley, Pratt & Letchworth Company, Buffalo, N. Y.
Jos. A. Stone, Riverside Foundry Company, Cleveland, Ohio.
C. L. Newcomb, International Steam Pump Company, Holyoke, Mass.
Frederick G. Evans, Mahoning Foundry & Machine Company, Youngstown, Ohio.
Harry A. Boyd, Youngstown Engineering Company, Youngstown, Ohio
Carl Horix, Geo. B. Sennett Company, Youngstown, Ohio.
G. A. Doeright, Falcon Bronze Company, Youngstown, Ohio.
T. J. Neacy, Filer & Stowell Company, Milwaukee, Wis.
Jno. M. Taylor, Taylor-Forbes Company, Guelph, Ont.
H. W. Hoyt and P. W. Gates, Allis-Chalmers Company, Chicago.
F. D. Howard, Lamb Knitting Machine Company, Chicopee Falls, Mass.
R. J. Whyte, Frost & Wood Company, Limited, Smith's Falls, Ont.
David Hunt, Jr., Baush Machine Tool Company, Springfield, Mass.
A. J. Caldwell, Crane Company, Chicago.

F. H. Fairweather, M. E. Kennedy and John C. Judge, Kennedy Valve Mfg. Company, New York.
F. T. Giblin, Giblin & Co., Utica, N. Y.
Chas. M. Jarvis, P. & F. Corbin Company, New Britain, Conn.
H. S. Hart, Russell & Erwin Mfg. Company, New Britain, Conn.
J. S. Van Cleve, Erie Foundry Company, Erie, Pa.
Frederic Nicholls and Geo. W. Watts, Canada Foundry Company, Toronto, Ont.
C. M. Power, St. Paul Foundry Company, St. Paul, Minn.
Geo. Q. Thornton, Carondelet Foundry Company, St. Louis, Mo.
M. H. Baker and Henry F. Arnold, American Tool & Machine Company, Boston, Mass.
W. H. McFadden, Mackintosh, Hemphill & Co., Pittsburgh, Pa.
J. T. Speer, Pittsburgh Valve Foundry & Construction Company, Pittsburgh, Pa.
Wm. Butterworth, Deere & Co., Moline, Wis.
Arthur E. Barlow, Newark, N. J.
John A. Rathbone, United States Heater Company, Detroit, Mich.
Samuel E. Hilles, Samuel C. Tatum Company, Cincinnati, Ohio.
Theodore Bollmann, Bollmann-Wilson Foundry Company, Cincinnati, Ohio.
Andrew N. Petersen, New York.
W. A. Taylor, Mallary & Taylor Iron Works, Macon, Ga.
B. J. Walker, Erie Malleable Iron Company, Erie, Pa.
H. W. Bullard, Poughkeepsie Foundry & Machine Company, Poughkeepsie, N. Y.
W. H. Shipler, Pennsylvania Engineering Works, New Castle, Pa.
Joseph Wright, Dominion Radiator Company, Toronto, Ont.
C. R. H. Cunningham, Chester Steel Casting Company, Chester, Pa.
John Grant, Valley Iron Works, St. Paul, Minn.
M. H. Murphy, American School Furniture Company, New York.
A. C. Pessano, Great Lakes Engineering Works, Detroit, Mich.
H. R. Luther and F. F. Stockwell, Barbour-Stockwell Company, Boston, Mass.
F. Macomb Cresson and Caleb Cresson, Jr., George V. Cresson Company, Philadelphia.
Frank Fiebeger, Akron Foundry Company, Akron, Ohio.
E. H. Walker, J. I. Case Threshing Machine Company, Racine, Wis.
William W. Wiard, Syracuse Chilled Plow Company, Syracuse, N. Y.
H. J. Boggis, Taylor & Boggis Foundry Company, Cleveland, Ohio.
W. W. Balkwill, Cleveland Steel Casting Company, Cleveland, Ohio.
J. S. Caffrey, Smith & Caffrey, Syracuse, N. Y.
M. J. Carroll, Carroll Foundry, Houghton, Mich.
John K. Gunn, Utica Pipe & Foundry Company, Utica, N. Y.
J. S. Stirling, Samuel L. Moore & Sons Company, Elizabeth, N. J.
James E. Flynn, Flynn & Emrich Company, Baltimore, Md.
Samuel A. Kensil and Jacob B. Blankley, Tioga Foundry Company, Philadelphia.
E. B. Pierce, Wheeler Foundry Company, Worcester, Mass.
David Townsend, Eddystone Foundry & Machine Company, Philadelphia.
James Eastwood, Benjamin Eastwood Company, Paterson, N. J.
Edward Maher, Maher & Flockhart, Newark, N. J.
George S. Rominger, Girard Iron Works, Philadelphia, Pa.
E. N. Sperry, Monumental Bronze Company, Bridgeport, Conn.
John J. Riley, Brooklyn, N. Y.
F. D. Wanning, Birmingham Iron Foundry, Derby, Conn.
H. T. Hornsby, United Iron Works Company, Springfield, Mo.
H. B. Goodrich, J. A. & P. E. Dutcher Company, Milwaukee, Wis.
Gen. Edward Jones, Jones of Binghamton, Binghamton, N. Y.
Oliver Crosby, American Hoist & Derrick Company, St. Paul, Minn.
Ellis L. Rowe, Rensselaer Mfg. Company, Troy, N. Y.
C. R. Stephens, Moline Plow Company, Moline, Ill.
Chas. A. Barnard, Barnard & Leas Mfg. Company, Moline, Ill.
E. E. Durant, G. F. Warner Mfg. Company, New Haven, Conn.
F. B. Farnsworth, McLagon Foundry Company, New Haven, Conn.
C. E. White, Deere & Mansur Company, Moline, Ill.
Wm. C. Doherty, Doherty Bros., Lowell, Mass.
James F. Lannigan, Davis Foundry Company, Lawrence, Mass.
J. B. Sargent, Sargent & Co., New Haven, Conn.
Thos. Devlin, Thos. Devlin Mfg. Company, Philadelphia, Pa.
Fred. G. Scholfield, Kabley Foundry Company, Worcester, Mass.
F. A. Strong and B. F. Lyon, Eaton, Cole & Burnham Company, Bridgeport, Conn.
H. A. Illman, James Barker, Philadelphia.
C. S. Bonsall, Buckeye Engine Company, Salem, Ohio.
R. M. Bertram, Bertram Engine Works, Toronto, Ont.
Lyman P. Hubbell, Fillmore Avenue Foundry & Iron Works, Buffalo, N. Y.
Wm. Yagle, Yagle Foundry & Machine Company, Pittsburgh, Pa.
W. D. Sayle, City Foundry Company, Cleveland, Ohio.
E. L. Munson, Munson Bros. Company, Utica, N. Y.
J. F. Blauvelt, New England Butt Company, Providence, R. I.
A. H. Bullard, Bullard Machine Tool Company, Bridgeport, Conn.
D. J. Kilby, Kilby Mfg. Company, Cleveland, Ohio.
Thos. H. Savery, Pusey & Jones Company, Wilmington, Del.
George T. Brown, Brown Cotton Gin Company, New London, Conn.
Jno. E. Mackintosh and E. A. Merrill, McIntosh-Seymour Company, Auburn, N. Y.
R. J. Cleveland, Cleveland & Barr Foundry Company, Chicago.
Wm. J. Michel, Tarrant Foundry Company, Chicago, Ill.
Alex. Jarecki, Jarecki Mfg. Company, Erie, Pa.
W. B. Greene, Palmers & De Mooy Foundry Company, Cleveland, Ohio.
C. W. Davenport, National Foundry Company, Erie, Pa.
C. C. Smith, Union Steel Casting Company, Pittsburgh, Pa.
G. E. Emmons, Edison General Electric Company, Schenectady, N. Y.
Edgar McDougall, John McDougall Caledonian Iron Works Company, Montreal, Quebec.
E. L. Dawes and J. F. Whitehead, Standard Sanitary Mfg. Company, Pittsburgh, Pa.
W. J. Carlin, Thos. Carlin's Sons Company, Allegheny, Pa.
Robert Taylor, Taylor, Wilson & Co., Allegheny, Pa.
T. L. Greenwald, I. & E. Greenwald Company, Cincinnati, Ohio.
Geo. Rollings, Pittsburgh Malleable Iron Company, Pittsburgh, Pa.
V. M. Moore, Chisholm & Moore Mfg. Company, Cleveland, Ohio.
Oliver Phelps, Lorain Foundry Company, Lorain, Ohio.
James McNaughton, American Locomotive Company, Schenectady, N. Y.
Omar N. Steele, American Ship Building Company, Cleveland, Ohio.
H. N. Covell, Lidgerwood Mfg. Company, Brooklyn, N. Y.
John H. Ricketson, Jr., A. Garrison Foundry Company, Pittsburgh, Pa.
Thos. E. Durban, Erie City Iron Works, Erie, Pa.
E. G. Rippel, Buffalo Foundry Company, Buffalo, N. Y.
W. L. Herendeen, Herendeen Mfg. Company, Geneva, N. Y.
S. S. Gould, Gould Mfg. Company, Seneca Falls, N. Y.
J. W. Gardner, Gardner Governor Company, Quincy, Ill.
W. Strangward, Forest City Foundry & Machine Company, Cleveland, Ohio.
Walter Perry and G. W. Osborn, Farrel Foundry & Machine Company, Ansonia, Conn.
W. H. Morgan, Morgan Engineering Company, Alliance, Ohio.
Patrick Kennedy, Kennedy Foundry, Baltimore, Md.
G. T. Marsh, South Baltimore Steel Car & Foundry Company, Baltimore, Md.
S. H. Chapman and Owen Lloyd, Ontario Wind Engine & Pump Company, Toronto, Ont.
Exile Burgitt, Southern Engine & Boiler Works, Jackson, Tenn.
Stanley G Flagg, Jr., Stanley G. Flagg & Co., Philadelphia.
Justis H. Schwacke, Wm. Sellers & Co., Philadelphia.
A. O. Beatty, M. Beatty & Sons, Welland, Ont.
John W. Logan, Logan Mfg. Company, Phœnixville, Pa.
H. C. Francis and W. H. Shelmire, Jr., Creswell & Waters Company, Philadelphia.
W. J. Phillips, Phillips & McLaren, Pittsburgh, Pa.
Henry E. Pridmore and D. F. Pridmore, Chicago, Ill.
Ward W. Willits, Adams & Westlake Company, Chicago, Ill.
Richard C. Oliphant, Trenton Malleable Iron Company, Trenton, N. J.
R. E. Kingsbury, Morgan Construction Company, Worcester, Mass
J. J. Harty, Canadian General Electric Company, Kingston, Ont.
C. D. Marr, Fremont Foundry & Machine Company, Fremont, Neb.
M. Benjamin, Atlanta Machine Works, Atlanta, Ga.
D. Lewis Bartlett, Bartlett, Hayward & Co., Baltimore, Md.
Thomas Evans, Eynon-Evans Mfg. Company, Philadelphia.
George A. Farrall, Johnston Harvester Company, Batavia, N. Y.
H. R. Robinson, Robinson & Co., Richmond, Ind.
C. F. McGilvray and H. E. Myers, Robbins & Myers Company, Springfield, Ohio.
T. W. Fry, Sullivan Machine Company, Claremont, N. H.
D. F. O'Neil, Western Foundry Company, Chicago, Ill.
J. R. Ketcham, Brown-Ketcham Iron Works, Indianapolis, Ind.
G. J. Feiss, Superior Foundry Company, Cleveland, Ohio.
H. L. Ide and J. G. Robertson, A. L. Ide & Sons, Springfield, Ill.
Alfred T. Green, Vulcan Works, Chester, Pa.
G. Bartol, Otis Steel Company, Cleveland, Ohio.
R. H. North, North Bros. Mfg. Company, Philadelphia.
H. Carlton, South Baltimore Steel Car & Foundry Company, Baltimore, Md.

E. F. Du Brul, commissioner, and Robert Wuest, secretary, National Metal Trades Association, Cincinnati; Thomas M. Roche, secretary Cleveland Founders' Association, Cleveland, and Daniel Davenport, American Anti-Boycott Association, Bridgeport, Conn., were also present during the sessions.

Members' Banquet.

The members of the association participated in a subscription banquet on Wednesday evening. The banquet was held in one of the dining rooms of the New Willard Hotel, which was unusually favorable for such a function, as its acoustic properties were far above those ordinarily found in rooms of this character. An orchestra and a glee club rendered numerous musical selections during the discussion of the *menu*. The *menu* card was unique, representing a certificate of stock. The design of the usual handsomely engraved stock certificate of industrial corporations was closely followed, with the addition that the back bore portraits of the six men who have served as presidents of the association up to this meeting—namely, W. H. Pfahler, P. W. Gates, O. P. Letchworth, H. W. Hoyt, W. D. Sargent and F. T. Towne. The courses of the *menu* were cleverly couched in terms familiar to foundrymen.

Stanley G. Flagg, Jr., of Stanley G. Flagg & Co., Phila-

delphia, officiated as toastmaster during the post-prandial exercises, gracefully bearing the exacting duties of that position. H. N. Covell of the Lidgerwood Company, Brooklyn, N. Y., was first called upon. Mr. Covell paid a high tribute to the services rendered the association by the absent president, F. T. Towne, announcing that a massive silver service of seven pieces of special design had been purchased in behalf of the members for presentation to Mr. Towne, and would be duly forwarded. The gift was placed on a side table in the banquet room for inspection. A standing toast was drunk to the absent president. The toastmaster also called on the following individuals: E. F. Du Brul, Commissioner of the National Metal Trades Association, Cincinnati, Ohio; A. I. Findlay, *Iron Trade Review*, Cleveland, Ohio; O. P. Letchworth, Pratt & Letchworth Company, Buffalo, N. Y.; W. H. Pfahler, Abram Cox Stove Company, Philadelphia,

ANTONIO C. PESSANO, Vice-President.

Pa.; J. H. Webster, Variety Iron Works Company, Cleveland, Ohio; Isaac W. Frank, United Engineering & Foundry Company, Pittsburgh, Pa., and others. The most elaborate speeches of the evening were made by Messrs. Letchworth and Pfahler, who were alluded to by the toastmaster as the statesmen of the association, and by Mr. Webster, who was introduced as one of the fighting members.

Retirement of John A. Penton.

The retirement of John A. Penton, commissioner, is a severance of his connection with the association. This is a matter of more than passing moment to its members. Without detracting from the influential part taken by others at the inception of the movement, it may be stated that to Mr. Penton is due in great measure the credit for bringing the organization into existence. His practical experience as a molder, his knowledge of union methods, his wide acquaintance in the foundry trade, and his ability to set forth convincingly the benefits of a defense association, fitted him peculiarly to undertake the work of getting the foundry interests outside of the stove trade to consider seriously the proposition of forming a national organization to handle the labor question. When the association was organized, which was about six years ago, the management of labor matters, under the direction of the Administrative Council, fell on the secretary, and Mr. Penton, who had been elected to that position, was soon compelled to devote practically his entire time to the discharge of such duties, and thenceforward, until the past week, he has been continuously engaged in this work. As the business of the association increased it was found desirable to relieve Mr. Penton from some of his labors, and last year the secretaryship was made a separate office from that of commissioner. While the association has been liberal in the matter of compensation, and the members individually and collectively have shown their appreciation of the service rendered by Mr. Penton in various complimentary ways, it may be safely stated that the value of those services has been far above any pecuniary estimate. Mr. Penton proposes to take a needed rest, not having definitely decided what special direction shall enlist his energy.

New England Foundrymen.

The New England Foundrymen's Association had their monthly meeting and dinner at the Exchange Club, Boston, Wednesday, the 11th inst., with a large attendance, despite the fact that a considerable delegation of the members were attending the meeting of the National Founders' Association at Washington, D. C. Vice-President B. M. Shaw presided in the absence of President Henry A. Carpenter, and John Magee acted as secretary in place of Fred. F. Stockwell.

It was announced that the Central Labor Bureau is assured, and will be open for the beginning of business December 1. As previously stated in *The Iron Age*, the New England Foundrymen's Association, the Boston Metal Trades Association and the New England Iron League, acting together through a committee of two from each organization, have been considering such a labor bureau for some months. The plan is to conduct a bureau patterned in a general way after those at Cleveland, Cincinnati, Worcester and other cities. The beginning will be the compilation of the names and histories of employees of the various metal trades of Boston and its immediate vicinity, the work to be gradually extended until it includes most of New England; at any rate, all New England east of the Connecticut River. The financial arrangements for the support of the bureau are already far enough progressed to assure success.

Thomas D. West of Sharpsville, Pa., read two interesting papers, one on "The Bottom of a Green Sand Mold," the other on "The Top of a Green Sand Mold." Mr. West illustrated his talks by means of drawings. Discussion followed the papers.

Those present at the meeting were:

Bartlett M. Shaw and Robert Blythe, Walker & Pratt Mfg. Company, Watertown, Mass.
John Magee and I. W. Winchester, Magee Furnace Company, Boston.
Thomas D. West, Sharpsville, Pa.
G. H. Carson and Arthur W. Gibby, Mechanics' Iron Foundry Company, Boston.
A. Carpenter and S. F. Patterson, A. Carpenter & Sons Company, Providence, R. I.
A. J. Miller, Jr., Whitehead Bros. Company, Boston.
C. Hitch, Jr., American Tool & Machine Company, Boston.
E. J. Lyon and W. J. Latham, Brown & Sharpe Mfg. Company, Providence, R. I.
B. C. Saulpaugh, F. O'Brien and B. J. Comley, Victor Metals Company, East Braintree, Mass.
C. T. Colvin, Colvin Foundry Company, Providence, R. I.
J. G. Aldrich, New England Butt Company, Providence, R. I.
Fred. W. Dixon, Taunton Locomotive Mfg. Company, Taunton, Mass.
W. G. Coffin, Springfield Facing Company, Springfield, Mass.
George H. Lincoln, George H. Lincoln & Co., Boston.
William H. Beuse and Farrel M. Galligan, Kinsley Iron & Machine Company, Canton, Mass.
William Harvie and A. G. H. Fitch, Vaughn Machine Company, Peabody, Mass.
F. R. Witherly, Charlestown, Mass.
Harlan W. Cutter, Waltham Foundry Company, Waltham, Mass.
Richard H. Penney, J. P. Winlock, F. A. Hoyt and S. M. Thompson, Barbour-Stockwell Company, Cambridge, Mass.
James E. Hunter and H. E. Wetherbee, James Hunter Machine Company, North Adams, Mass.
James V. Sullivan and Oscar E. Nutter, Saco & Pettie Machine Shops, Newton, Mass.

J. E. Plimpton, Norwood, Mass.
C. C. Boyden, Newton, Mass.
A. L. Lovejoy and W. J. O'Brien, Becker-Brainard Milling Machine Company, Hyde Park, Mass.
A. Fred. Hamnett, Frank D. Moffat & Co., Boston.
William J. Breen, with Hugh W. Adams, Boston.
E. V. Hazard, Old Colony Foundry, East Bridgewater, Mass.
Michael Donlon, L. H. Goodnow Foundry Company, Fitchburg, Mass.
Walter M. Saunders, Saunders & Franklin, chemists, Providence, R. I.
Fred. D. Thorp and W. D. Ballard, Coburn Trolley Track Company, Holyoke, Mass.
J. Bowie, Builders Iron Foundry, Providence, R. I.
George H. Gibby and William H. Stafford, Condor Iron Foundry, East Boston, Mass.
William McElvie, James Gurney & Co., Boston.
Walter B. Snow and William Sangster, B. F. Sturtevant Company, Hyde Park, Mass.
E. H. Waldron and W. F. Savage, White-Warner Company, Taunton, Mass.
John Nelson, *The Iron Age*.
Robert P. Cunningham, Deane Steam Pump Company, Holyoke, Mass.
Joseph M. Skulley, Smith & Anthony Company, Boston, Mass.
W. S. White, J. S. White Company, Pawtucket, R. I.
William A. Crump, Neponset, Mass.
William E. Murphy and Patrick Connors, Atlantic Foundry, Boston.
M. J. Dyer, Valley Falls, R. I.
J. W. Rickardson, Howard & Bullough American Machine Company, Pawtucket, R. I.

Iron and Steel in Scotland.

GLASGOW, November 6, 1903.—There have been many quotations from your side for pig iron, steel bars, &c., delivered in Glasgow, but no transactions, as far as I can learn, have been actually booked here. The first sale of 1000 tons of American steel bars at Swansea was known here, I think, before New York. Further sales have been made up to 80,000 tons, over next six months, of American steel bars, or billets, for South Wales and Lancashire. It is German steel you have to compete against in British markets, and German steel can be exported at a loss on production, owing to the bounties allowed by the syndicates of manufacturers on all steel sent out of the country.

Pig Iron.

It is curious how prices of finished iron and steel are sustained here, notwithstanding the decline in iron warwants; but then it is to be remembered that all makers' iron has not declined to the same extent. As a rule, the smelters both in Scotland and in Cleveland are so well covered with orders that they pay little attention to warrants. The following are the currently quoted prices of makers' iron:

	No. 1. s. d.		No. 1. s. d.
G. M. B., Glasgow	50 6	Clyde, Glasgow	61 6
Monkland, Glasgow	53 6	Carnbroe, Glasgow	64 6
Coltness, Glasgow	72 6	Glengarnock, Ardrossan	60 6
Summerlee, Glasgow	63 6	Eglinton, Ardrossan	54 6
Gartsherrie, Glasgow	62	Dalmellington, Ayr	54
Shotts, Glasgow	65		

Middlesbrough G. M. B., f.o.b. Tees: No. 1, 45 shillings; No. 3, 43 shillings 3 pence; No. 4 foundry, 43 shillings 3 pence; No. 4 forge, 43 shillings 3 pence.
W. C. hematite, mixed numbers, 56 shillings, Cumberland or Barrow.
E. C. hematite, 53 shillings, Tees.
Scotch hematite, 58 shillings, at steel works.

An interesting shipment of the month is a cargo of 3000 tons at West Hartlepool for Philadelphia. It is a special quality of hematite iron and does not affect the situation.

All the business in the iron ring, such as it is, is in Cleveland warrants, and they have been more plentifully in evidence of late, as if holders were discouraged by reports and expectations as to movements of American iron. The other day a wild statement was put in circulation here that America was negotiating to send over pig iron to Glasgow to be stored on warrants, in order to relieve her own market and dominate ours.

Our Scotch iron founders consume Cleveland iron when they can get it cheap enough, and they have been having a lot of it of late. This demand has kept up the shipments from the Tees to a surprising extent, but the Continent is also taking a good deal more than one would have predicted. The increase of Tees shipments for the year so far is about 120,000 tons, and there have also been increases of 8000 tons in the shipments of manufactured iron and of 21,000 tons in the shipments of steel. But the shipments of Scotch pig iron have declined by about 33,600 tons, and as the stocks also have decreased our home consumption must have been pretty good. It must decline now, to judge from the complaints one hears from steel makers and malleable iron makers. Meanwhile the quarterly audit of the Board of Conciliation reveals the fact that the average selling price of Scotch pig in the Glasgow market during August, September and October was £2 11s. 8d. per ton, and this average calls for no change in the wages of blast furnacemen.

Effects of Miners' Riots in Spain.

The riotous strikes of miners and others at Bilbao, in Spain, caused much anxiety here while they lasted. A few days more of them would have sent up the price of pig iron, for it is from Bilbao that the Scotch furnaces derive nearly all the ore for smelting hematite iron. William Baird & Co. and Merry & Cunninghame have mines of their own in the south of Spain, and were not affected by the disturbances in the Province of Biscay; but all our other smelters require this ore, as do also the smelters of steel making iron in Cleveland and South Wales. We have a large shipping trade from the Clyde with Bilbao, sending out coal, &c., and bringing back ore, and several Glasgow firms have business houses there. The progress of the strike or riots was, therefore, watched with keen interest, and the report of the termination of the struggle has been received with much satisfaction.

The proposal has been renewed in the iron ring for some change of system in warrants that will serve to attract more outside dealers. Several times of late years there have been proposals to cut down G. M. B. warrants from 500 tons to 100 tons, so as to multiply scrip and encourage speculation on a small scale. I do not share the opinion that a reduction in weight in warrants would bring about more business—or, rather, more speculation—for the speculating public are tired of the iron ring and find more attractions elsewhere when they want to lose money. The Scotch Pig Iron Trade Association, however, has had the matter under consideration this week, and a report has been drawn up by a special committee to lay before the whole trade.

The Barrow and Northwest Districts.

In our neighboring Barrow district hematite pig iron is still quiet. Makers are indifferently supplied with orders, and especially so in cases where they have no steel works to use up the products of their blast furnaces. The demand on steel makers' account is perhaps better this week than it was, and there seems reason to believe they will want fuller supplies of metal during the winter than they have been getting of late. Stocks are still large in the hands of makers. Makers quote 56 shillings for mixed Bessemer numbers, net, f.o.b., being a drop of 6 pence on the week. The steel mills in this district which stood idle last week are now in full employ and they have work in hand for a few weeks, with prospects of a few new orders, but not a great bulk of trade. Indeed, it is probable the mills will stop one or two weeks before Christmas. The value of heavy rails is steady at about £5 5s. per ton. Ship plates are at £5 15s., net, f.o.b. Other steel sorts are quiet.

In the northwest district there has been a steadying from the downward tendency, but the position has undergone no appreciable improvement and the situation all through is unsatisfactory. Consumers still buy cautiously, and although for prompt delivery prices are fairly steady low forward quotations continue to be made by speculative operators. Most of the forges continue short of work, and the new business coming forward is small in quantity. An indifferent business continues in the steel trade. There is still no improvement to report in the engineering trades. Machine tool makers report comparatively little new work coming forward, and in most cases shops are getting short of orders. In structural engineering a moderate amount of activity is maintained, and electrical engineers continue fairly busy.

Some slight improvement is reported in textile machinery for export, but orders are cut for at excessively low figures.

The Coal Trade.

The Scotch coal trade is in a listless condition, with little hope of improvement this year. It is, however, in this respect better off that the trouble between the shale miners and the oil companies, to which I referred in last letter, is now at an end. When the shale miners found the employers were serious in their determination to shut down all the shale pits rather than allow the men to play at the four-day-week policy, they also discovered that the employers had made a fair offer of arbitration, which might as well be accepted. They did accept and an arbiter has been appointed. The shale mines having resumed work, there has not been the rush from them to the coal mines which would have resulted had the struggle been prolonged.

A New Welding Process.

A new system of welding is being shown here by Mechan & Sons of the Scotstoun Iron Works, who have at work an Italian apparatus for the production of pure oxygen and hydrogen gases by the electrolysis of water, and for welding with these by the use of the blow pipe. The apparatus yields gas according to the amount of power absorbed, and works continuously with the maximum as well as with the minimum of power. With the system it is possible to utilize such power as is wasted in establishments where the machines are worked intermittently. The gases can be effectively and cheaply applied by means of the blow pipe to the repair of defective iron and steel castings, armor plates, the welding of iron, steel and copper tubes, iron and steel plates, trolley wires, tramway rails and connections, &c.

A large number of experiments have been made with the apparatus, and the result has been satisfactory, not only to the representatives of the patentees, who are in this country superintending the operations, but to representatives of large local engineering shops who have had work done for themselves in their own presence. Heavy castings rejected for slight flaws or cracks have been welded absolutely solid, broken castings have been joined, copper, brass and steel tubes have been welded with one another, pieces of tramway rails have been united, a broken bell has been mended so that it rings as it did before being cracked, and tubing similar to that used in bicycles has been joined in a way that is quite as neat as and evidently stronger than brazing, and certainly much simpler.

The system claims to have a great advantage over electric welding, as with it there is no oxidization or spoiling of the material, and it is claimed to be far superior to ordinary welding by fire, because it is cleaner and the current is applied only to the required spot, which, as the work is done in the open air and with no covering of any kind, can be exactly localized. A point of difference from electric welding is that the material does not require to be annealed after the operation is over. It is left at a proper temper and requires only to be machined.

The Shipbuilding Outlook.

Shipbuilding is not improving, but is rather getting worse as the year advances. The output from the yards, however, is large. Thus there were launched in Scotland during October 21 vessels of 45,119 tons, as compared with 30 vessels of 31,913 tons in September and 27 vessels of 49,699 tons in October of last year. To the total the Clyde contributed 19 vessels of 44,699 tons and the Tay two vessels of 420 tons. The October launches make the output for the ten months of the year 376,373 tons. The present is the smallest ten months' output since the strike year, 1898.

The year will close with work on hand at a much smaller total than was the case last year. Work for the merchant marine is especially slack, and only two specifications of any note were placed during October. These were a large passenger and cargo steamer for the P. & O., line to be built by Caird & Co., Greenock, and a passenger and cargo steamer of 2500 tons for the New Zealand Union Steamship Company, to be built by D. J. Dunlop & Co., Port Glasgow. The new contracts represent only about 20,000 tons.

Large cargo steamers can be contracted for at present at from £5 12s. 6d. to £6 per ton deadweight capacity, and steel ship plates are worth here just now £5 15s., less 5 per cent. Wages, however, are so high that there can be no margin for shipbuilders at these figures. The latest development is that the shipbuilders in the districts of the Tyne, Wear and Tees have given notice of a reduction of 5 per cent. in shipyard wages, to begin next month. The machinists in the marine engine shops have quite ceased to bluster about insisting on an advance, as another reduction seems more likely in their case also.

B. T.

The Mechanical Engineers.

The programme for the forty-eighth meeting of the American Society of Mechanical Engineers has been distributed to the membership. In addition to the arrangements noted in *The Iron Age* for November 5, the following announcement of subjects may be made:

At the opening session of Tuesday evening, December 1, James M. Dodge, president of the society, will deliver the annual address, his subject being "The Money Value of Technical Training."

At the session of Wednesday morning, in the hall of the Mendelssohn Union, 113 West Fortieth street, the usual business will be disposed of, including election of officers for 1904. Following the business session, and at succeeding sessions for papers, the following subjects will be presented by the authors named:

"Is Anything the Matter with Piecework?" Frank Richards.

"Modifying Systems of Management." H. L. Gantt.

"Slide Rules for the Machine Shop as a Part of the Taylor System of Management." C. G. Barth.

"What Are the New Machine Tools to Be?" Prof. John E. Sweet.

"Suggestions for Shop Construction." F. A. Scheffler.

"The Pitot Tube." W. B. Gregory.

"Method of Determining Rates and Prices for Electric Power." F. B. Perry.

"Three and Four Wire Multiple Voltage Systems." Louis A. Gillet.

"Test of a Compound Engine Using Superheated Steam." Prof. D. S. Jacobus.

"The Pressure-Temperature Curve of Sulphurous Anhydride (SO_2)." E. F. Miller.

"Construction and Efficiency of a Flemish Four-Valve Engine." Benjamin T. Allen.

"A Compact Gas Engine: Beam Type." C. H. Morgan.

"Standard Unit of Refrigeration." J. C. Bertsch.

"Series Distilling Apparatus of High Efficiency." Prof. W. F. M. Goss.

"Air Motors and Air Hammers; Apparatus and Method for Testing." Max H. Wickhorst.

"Valve Motion of Duplex Air Compressor." S. H. Bunnell.

Wednesday afternoon and evening will be left open, the former for visits to some of the large power plants of New York and vicinity, the latter for such social or amusement engagements as individual members may choose to make. The works of the De Laval Steam Turbine Company, Trenton, N. J., will probably be visited by a large delegation on Friday afternoon.

Chicago has been selected as the place of meeting in May. This choice was dictated by the desirability of having the meeting held within convenient distance of the Louisiana Purchase Exposition, yet without the inconvenience due to the crowded conditions likely to prevail at St. Louis during the greater portion of the year 1904.

Linen paper is supposed to be the strongest fabric of its kind, but recent tests at the United States Arsenal in Watertown show that blue print paper is stronger. The first named paper withstood 9000 pounds per square inch, while the latter carried 9700 pounds per square inch before breaking.

The Iron Age

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DAVID WILLIAMS COMPANY, - - - - - - - - PUBLISHERS.
CHARLES KIRCHHOFF, - - - - - - - - - EDITOR.
GEO. W. COPE, - - - - - - - - - - ASSOCIATE EDITOR.
RICHARD R. WILLIAMS, - - - - - - - - - HARDWARE EDITOR.
JOHN S. KING, - - - - - - - - - - BUSINESS MANAGER.

The National Founders' Association.

The proceedings of the National Founders' Association, as reported elsewhere in our columns, present but few matters of general public interest. Foundrymen who are not members of the association will probably come to the conclusion from reading the rather meager report of the convention that it amounted to very little more than a consultation over a few questions affecting the policy of the association and the usual election of officers. The convention was in session for two days, and about 200 members of the association were in attendance. If the action of the convention was really confined to the matters set forth in the report of the proceedings, it would undoubtedly have been simply a routine meeting, such as might have been held by any organization. The importance of the association, however, deserves some little explanation of the character of its deliberations, so that the general foundry trade may have the right impression. In the first place, all meetings of this association are exclusively of an executive character, as the subjects considered are almost invariably of such a nature as to make it impolitic to present the discussions and the action taken to the scrutiny of everybody. The association is an organization whose purpose is to handle the labor interests of the members. It is therefore for obvious interests necessary that much of the action taken should be closely confined to the knowledge of the membership.

The association has now been in existence for six years. This period covers a time of extraordinary activity in the iron trade, during which the demand for all kinds of iron and steel products has been up to the capacity of the country and occasionally has run in excess of it. This has brought about an unusual demand for both skilled and unskilled labor. The leaders of organized labor have not hesitated to take advantage of what was to them a golden opportunity, and they have sought by every means to strengthen the position of trades unions and to endeavor to secure concessions from employers which would have been practically impossible during ordinary times. It was a most trying period for a new employers' organization. From its inception the association has been involved in labor troubles in the shops of its members, and every year has seen fresh conflicts breaking out, until in the past year the number of such controversies overtopped anything previously known. It was perhaps well for the general foundry trade that such an organization had been brought into existence at the time the National Founders' Association was organized. If the foundry trade had not been represented by a compact body of employers, it may safely be assumed that the aggressions of organized labor would have been much greater and that the operations of employers would have been much more seriously hampered by restrictive regulations than those now obtaining. We have seen examples of this unbridled rapacity on the part of organized labor in many other branches of trade.

During this period it has not been the aim of the National Founders' Association to endeavor to break down the unions and to force labor organizations out of their shops. It would, perhaps, have been impossible to do this without the expenditure of an enormous amount of money and the disorganization of the great foundry industry. The efforts of the officers of the association have rather been directed toward the conciliation of labor and the adoption of agreements which would on the one hand avoid labor troubles, and on the other hand keep the restrictive influences of union labor under reasonable control. Some criticism has been made of the results accomplished by the association on the ground that too much has been yielded to labor. This, we believe, is unjust criticism, in view of the fact that in notable instances the association has placed itself squarely against unreasonable demands and has fought long battles in the shops of some of its members to defend them in preserving more equitable conditions for employers' interests. The association, it must be conceded, has been a very important factor in the labor field during this exceptional period.

If it had been possible for labor leaders to hear some of the discussions during the late sessions of the convention, they would have been impressed by the breadth of view of the men who have been most prominent in directing the policy of the association. Some of those who have gone through unpleasant experiences in labor controversies, instead of displaying bitterness of feeling against those who had given them trouble and caused them serious financial losses, displayed a deep interest in the welfare of their men and continued to advocate conciliation as the proper means of handling the labor question. Their opposition to organized labor as now constituted is not wholly based on the ground of self interest, but because they are firmly of the opinion that the individual workman has better opportunities under a free system. The restrictions which labor unions are seeking to enforce, not only in reduction of hours, but in limiting the output of the individual, are regarded as undermining the principles of fairness and honesty which must animate every individual who would make himself a good citizen. It must be admitted at the same time that the occurrences of the last few years have developed a much greater militant spirit among the members of this association than was at one time apparent. There are forceful members of the organization who are restive under union aggressions and who feel that the time has come, or will shortly be here, when vigorous action must be taken toward throwing off what they consider a galling yoke. This element would favor conciliation and arbitration to a certain extent, but in all instances in which such peaceful means of settling a labor difficulty fail and a strike ensues, they advocate that the question be pressed to a definite conclusion, and in case of a victory by the employers the shop involved would thereafter be maintained as an open shop forever. This sentiment appears to be growing, and may possibly have greater influence in directing the future policy of the association than heretofore. It is, of course, in line with the growth of opposition to union domination, which has been forced in so many branches of trade by the developments of the last few years. They see that prodigious efforts are being made by labor leaders to unionize every branch of industry, and particularly every manufacturing establishment. The growth of militant sentiment among peace loving employers is a development which it will be well for union leaders to heed. That they are doing so to some extent is shown by the fact, as presented at this convention, that in certain recent agreements with the Molders' Union restrictions on the output of the molder have been removed. If the unions would maintain the stand-

ing they now occupy in many foundries they will especially abandon their efforts to limit production, and will permit their members to turn out as good a day's work as they are capable of doing.

Progress has been made by the representatives of the association toward securing a uniform agreement with molders' unions. The foundrymen have heretofore made agreements with their molders which have greatly varied according to locality. While the association makes no attempt to establish uniform hours and uniform rates of wages for the entire country, it is endeavoring to secure uniformity of agreement on certain basic principles. These principles are the removal of all restrictions on a day's work by limitation of output, limitation of a man's earning capacity, or the imposition of fines for the purpose of handicapping him; the right of the foundryman to introduce improved appliances of any kind into his shop; the prohibition of sympathetic strikes, and the submission of questions in dispute in any foundry in which members of the molders' union are employees to arbitration before a declaration of any strike or lockout. The adoption of an agreement of this character may be considered as the keynote to the whole labor situation. If an equable uniform agreement should be adopted, it would go far toward avoiding the causes which usually lead up to labor controversy. Of course, organized labor may at any time bring up some such proposition as a uniform shorter work day and a minimum general wage rate, which would bring about a widespread controversy that would involve all foundries. In defense of employers under such a state of affairs, the National Founders' Association would be of very great importance.

From one point of view the association is entering now upon a critical period in its existence. The slackening demand for iron and steel products is being felt in the foundry trade, as well as in every other branch of the iron business. In every foundry center there is now a surplus of labor, whereas only a few months since it was very difficult to secure even all the unskilled labor required. From appearances, applications are likely to be made for work from so many of the unemployed that under the operation of the natural law of supply and demand it will be possible to secure men at reduced rates of wages in localities which have been paying a practical premium. In some districts it is likely that hours of labor which had been shortened under union pressure may again be lengthened. Under such circumstances, foundrymen may feel that they can save the expense of maintaining an employers' organization and successfully manage their own labor affairs. This would, however, be a short sighted policy, which in the long run might possibly prove more expensive than contributions to the maintainance of a strong organization to handle labor troubles. Depression in business is a temporary incident. The power of the unions may weaken during such a time, but as soon as conditions improve they may be expected to become as vigorous and exacting as ever.

Many of the reports in circulation regarding the shutting down of manufacturing establishments or the discharge of workmen are without foundation in fact. Such stories are generally credited, especially when they concern establishments in some other section of the country, and consequently do as much harm in stimulating suspicion of business conditions as if they were true. It may be well for business men to consider the possible lack of truth in what they read of this sort of news before taking alarm. In not a few instances the discharge of a few men has been manufactured into the discharge of scores, or even hundreds, and in more cases manufacturers have been reported to contemplate shutting down or other curtailments, where, as a matter of fact, no such move was contemplated. Business is meeting a depression, but in many instances alarmist rumors have made it worse than it is.

Employers' Liability.

In view of the extremely unsatisfactory character of the laws of the several States relative to the liability of employers for accidents to workmen and the difficulty experienced in the courts of doing substantial justice to all in interest, the State of Massachusetts has done wisely in referring this subject to a special commission to study it broadly and report a bill which shall meet the requirements of the case fairly and with intelligent regard to modern industrial conditions. This promises a much better result than could be expected from the passage of such haphazard bills as may be introduced by members who act on their own initiative or at the suggestion of labor leaders. The Massachusetts commission has concluded its labors, so far as hearing testimony is concerned, and is now engaged in preparing its report, which it is required to present before the close of the present year. It will undoubtedly be a document of great interest and value. The inquiry has been exhaustive, and if the result of the commission's work is up to the standard of most of the Massachusetts State documents it will have permanent value as a contribution to industrial literature.

The existing law of Massachusetts relating to employers' liability is, in operation, unsatisfactory to all in interest. Under it the workman cannot recover damages for injuries resulting from his own negligence or that of a fellow workman. On the other hand, the employer is required to provide safe and suitable ways, works and machinery. He must advise the workman of dangers which exist when these are not so obvious that failure to see them is *prima facie* evidence of contributory negligence on his part. This seems simple and, at first glance, equitable. That it is not so in practice is due to the fact that it is usually impossible to establish by testimony that an employer who is conscientious and tries to do his duty has done all that is possible to protect his workmen and warn them of other than obvious dangers. Many machines and many processes of manufacture are essentially dangerous, and safety for the workman demands the exercise of a greater and more constant vigilance than he is likely to exercise for his own protection. No employer of labor can so equip his plant as to make its dangerous machinery or apparatus "fool proof." He cannot so fence it in and guard it with shields and fenders that the man or boy who is indifferent to danger and who prefers to do things in the easiest way cannot cut or maim or kill himself. Indeed, experience in a great many instances has shown that the greater the number and ingenuity of the safeguards provided the greater the propensity of the workman to disregard ordinary prudence, and to rely less upon his own vigilance than upon that of his employer. This invites accident.

Experience has also shown that when an observance of the precautions of safety involves trouble, the average workman will deliberately choose the risks of neglecting them. Two cases in point will illustrate this. A manufacturer conducting a forging operation under very rapid hammer blows found that his workmen experienced great trouble from getting sparks in their eyes. He accordingly provided very light spectacles in-

closing large disks of very thin white mica, which neither magnified nor in any way embarrassed or obstructed the vision. They perfectly accomplished the purpose for which they were designed, but after one day not a man in the shop would wear them, preferring to take the risk of hot sparks in the eyes, with the result that one or two suffered from this distressing accident daily. In another shop in which noncarbureted water gas was used as a fuel in a metallurgical operation requiring high temperature, it had been found dangerous to go above the mill floor when the fires were running. Many of those who had occasion to do so were overcome by the carbon monoxide in the atmosphere and fell from the ladders to the cement floor, suffering more or less serious injury. Strong belts of webbing were accordingly provided, having iron rings to which ropes were attached, and instructions were posted all over the place to the effect that, owing to the danger of the gas under the roof, workmen and millwrights were forbidden to go above the mill floor for any purpose without putting on a belt, throwing the free end of the rope over a truss chord and calling another man to hold it, so that if the climber was overcome with dizziness or lost consciousness he might be lowered to the floor safely and without broken bones. This rule was persistently disregarded until enforced by the threat of instant and unconditional dismissal for all who failed to obey it. These instances are typical.

Experience has further shown that the transference of liability by the employer to a corporation under a policy of accident liability insurance does not meet all the requirements of the case. The damages awarded a workman for injuries received and to his heirs in the event of death are often far in excess of the amount for which an insurance company becomes liable in any individual case. This difference must be made up, and often represents an impairment of capital, since it is an indeterminate risk for which no provision can be made in the charge of the manufacturer for his product. It is often impossible for the insurer to comply with the conditions of his policy, and by reason of this inability he is frequently unable to hold the insurance company for damages even to the limit of the contract stipulations. He faces momentarily the risk of crippling, and perhaps ruinous, loss, which cannot be averaged and provided for.

The grievance of the workman growing out of the present system is partly real and partly sentimental. In many instances he has to do with machines which are dangerous if not handled in exactly the right way. Whether it is possible for a man engaged in a monotonous task to keep his mind so fixed upon his work and his vigilance at such tension that every motion is just what it should be is a question somewhat too involved with psychological phenomena to admit of brief discussion. As a matter of fact we often find that a man who has run a cutting machine or a circular saw or other highly dangerous tool for years without accident, suddenly loses his fingers or his hand. He may not know why this happened. If he does, he will probably realize that it is because he did something which he knew was wrong, and cannot imagine why he did it. Perhaps he thinks that he should not be expected to keep his wits about him when engaged hour after hour in a monotonous task, which leaves his mind free to go out wool gathering, and perhaps he is right. But to what extent is the employer responsible for the fact that while running a machine which he knew to be dangerous the workman did not pay attention to what he was doing and was hurt? Machinery sometimes breaks. The obligation of the employer is to provide good machinery and to make sure, as far as he is able, that everything is as strong as it should be. But he cannot discover the flaw in the casting, and if he buys the best, what more can be expected of him? Nothing, perhaps; but the workman who is scalded with steam or crushed under a detached mass of iron or otherwise injured in his service finds it hard to believe that the employer did all that could reasonably be expected of him. He feels that he is the victim of a system which has sacrificed him to the profits of the business in which he is engaged. Perhaps he is right; but how shall the responsibility for this condition be fixed? Juries are proverbially sympathetic, and in awarding him compensation for his injuries may do great injustice to the one who must satisfy the judgment. It is a large and anxious problem.

The report and recommendations of the Massachusetts commission should have as much value as interest for all concerned. The loss of life or productive power as the result of industrial casualties is a fact which cannot be disregarded. It falls upon some one—if not upon the employer, then upon the community—for the man who cannot support himself must in one way or another be supported. Even when the workman is barred by his own evident negligence from going to a jury with a plea for compensation, or the employer is held blameless, the loss has been insurred and must be met somehow. The State of Massachusetts has pursued the right method in amending its laws respecting employers' liability, and if the results are disappointing, it will doubtless be because the solution of the problem involved cannot be found through seeking, but must be evolved with the progress of civilization.

The Gold Imports.

The present movement of gold in this direction is perfectly normal at a season when our exports of breadstuffs and cotton are usually very heavy, and while the breadstuff exports are light as compared with previous years, the value of cotton exported last month was exceptionally large, amounting to nearly $40,000,000 more than the previous month, and $18,000,000 more than in October a year ago. The curious thing about our trade is that with so large a balance in our favor there is not more gold imported in the fall, and, in fact, throughout the year. The invisible elements of our foreign trade, however, have been subjects of considerable investigation and discussion.

The shipments of gold come at a time when there is a much greater need of money than at other seasons, and when the agricultural sections have been making pretty heavy demands on the Eastern money centers, though not so heavy as in some years. This money has been spared from New York more easily than last year because of the very great stock liquidation, and the decreased need of money for carrying securities.

This natural movement of gold supplies a certain element of elasticity to the currency, but it is a very small one. It is true enough that by the inevitable movement of gold from points of less to points of greater need every country is bound to get the money that is absolutely necessary to it, if it does not repel gold by depreciated silver, irredeemable paper currency, or something of that sort. It is most unfortunate for any country, as we learned during the suspension of specie payments, to have a currency system disconnected from the currency systems of the rest of the world, so that its

currency cannot go abroad when redundant or be increased from abroad when deficient.

But this does not obviate the importance to each country of having within itself means of expanding or contracting its currency. Of course, the world could get along with gold money only, but it long ago learned to economize in the use of gold by supplementing specie with paper money, and to economize in the use of paper money by employing checks, drafts and book credits. These came into use not because the commercial world was conscious of an insufficient supply of specie, but because no value was locked up in these paper representatives of value, and their safeguarding and their transportation cost less and involved less risk than in the case of gold.

Therefore, there is the same reason why the currency should have means of expanding and contracting other than the import and export of gold that there is for other currency than gold in general use. Gold will come from abroad only when the rates for money justify it, apart from what is necessarily employed in settling international balances. But with a bank currency responsive to the demands of business a stringency would be prevented, instead of cured, and the additional money needed in the autumn would be supplied with practically no expense.

Not a few manufacturers are taking advantage of the lull in business to reorganize their shop forces, something that has been almost impossible while business has been rushing. Weaknesses in organization that may have been apparent for months can now be remedied. The great majority of concerns in the metal lines have had to discharge a greater or smaller number of their employees, and in the laying off process the efficient and faithful workman has been retained wherever possible and the less efficient and less faithful has been let go. The workman who has been led away by the fallacies of the demagogic labor agitator, that the way to benefit labor is to produce the minimum of results for the maximum of pay, must now lie in the bed he has prepared for himself. There are other problems than labor in the way of reorganization in manufacturing establishments, in rearrangement of departments and methods, and manufacturers who are availing themselves of less busy days to thus prepare for other good times ahead will find that a business depression may have its advantages as well as its disadvantages. Some of the machine tool people had been keeping back new models because the demand for existing models was quite sufficient, without adding to the attractiveness of their machines. The new machines will now go on the market to tempt reluctant buyers.

The following table, prepared by the Bureau of Statistics, Department of Commerce and Labor, shows the relative rank in tonnage movement of the principal ports of the world. Figures of coastwise trade are not included:

Port.	Year.	Entered. Tons.	Cleared. Tons.
London	1902	10,179,023	7,385,085
New York	1902	8,982,767	8,415,291
Antwerp	1902	8,373,528	8,347,483
Hamburg	1902	7,860,223	7,993,166
*Hongkong	1901	7,383,683	7,340,586
Liverpool	1902	6,843,200	6,314,514
Cardiff	1902	4,688,088	7,868,556
Rotterdam	1901	5,950,445	5,733,763
†Singapore	1901	5,459,032	5,453,999
Marseilles	1902	4,911,784	4,552,088
Tyne ports	1902	3,615,046	4,754,301
Gibraltar	1901	4,171,350	4,159,272

* Exclusive of Chinese junks engaged in the foreign trade. The tonnage of these vessels entered and cleared was 1,126,931 and 1,130,279, respectively, in 1901.

† Exclusive of war ships, transports, native craft, and vessels under 50 tons, but inclusive of vessels engaged in trade between the Straits Settlements.

The Foreign Machinery Trade.

BY GEORGE P. ALTENBERG, CINCINNATI, OHIO.

Since domestic business activity has moderated, much is being written about the loss of our foreign trade in the machinery line. The falling off of foreign trade during the recent boom was welcomed by many concerns, because they could sell the same tools direct to American users at slightly better prices than the foreign dealer could afford to pay. Manufacturers overlooked the fact that it costs more to advertise and send traveling salesmen all over this country, to sell one or two machines at a time, than it costs to get the foreign trade, where the dealer pays the saleman, does most of the advertising, generally pays cash, orders from the catalogue several times a week, and only needs a personal call once a year.

If an American user wanted one or more machines quickly, he got them, and the foreign dealer had to wait. It may have been patriotism to say: "We will only sell our surplus output to foreigners." Was this good business policy, when every thinking man should have known that our domestic boom could not last forever? It would have been better for the manufacturers to have held on to the foreign markets, where American machinery was so well established four years ago. Even if that trade had yielded slightly less profit, its control would now repay the sacrifice five fold.

The English and German manufacturers hustled, and wherever a dealer could be found who was dissatisfied with the enormous increase in American prices and long delays in shipments, the foreigners copied the design of our goods, made them well, and sold at lower prices. The domestic boom having collapsed, there is wailing and gnashing of teeth because the foreign trade is gone, and European, chiefly German, makers have it. Being gone, it is harder to get it back than to have held on to it.

Catalogues and Salesmen.

How many Americans would even stop to bother with a saleman who could only talk to them through his interpreter, who did not know anything about the trade terms he was trying to interpret? What active American manufacturer would stop to study a catalogue printed in Russian, German or French, when he could buy the goods elsewhere, just as cheaply, from catalogues he could read? Still, most Americans expect all foreigners to buy from English catalogues. An American manufacturer once said to me: "These foreigners ought to study English if they want to do business with us." He ignored the fact that the seller must always adjust himself to the buyer's needs. Since it is the seller's business to furnish the buyer with catalogues, why not print them in a language which the buyer can understand, and correspond with him in his own language? Make it as easy as possible for the foreigner to do business, instead of compelling him to employ some one to translate the letters he receives and to tell him the substance of what is in the catalogue. It is much easier to interest a man in the description and good points of an article if it is put before him in an attractive catalogue, printed in a language which he can read at leisure, than if he must employ some one, perhaps unfamiliar with the technical points, to explain to him what the catalogue says, with the chances of getting the translations mixed.

Trade expressions are employed in American catalogues which are wholly unintelligible to a Russian, Frenchman or German, who has only studied English at school. Some of our expressions would perhaps not even be understood in London by some people in the same trade. On the occasion of my first visit to England I realized the vast difference between "American" and "English." I still remember the look of disgust with which I was greeted when I inquired: "Where is the freight depot?" My astonishment may well be imagined when the girl behind the counter replied: "We don't keep them, sir; this is the first time they've been called for." I finally learned that I was looking for the "goods station." A "car shop" is called a "railway carriage" or "wagon works," and so it goes. In the various trades there is still greater difference in the names by which

things are known. Therefore, catalogues in American English cannot be expected to do much good among those foreign buyers who do not understand English thoroughly. It is not more expensive to print catalogues in foreign languages (except the translations), hence I cannot understand why so many Americans persist in sending English literature to countries where it will not be understood. For correspondence German, English, French and Spanish suffice, except in cases of very large exporters, and even there other languages are scarcely necessary, because foreigners are good linguists, and most foreign business men understand one of these four languages, even if their own does not happen to be one of them. Stenographers understanding two or three languages are easy to find, and I often receive applications from those understanding four.

Legislation.

Russia now charges higher duties by 56 per cent. on American machinery and most other iron and steel products than on similar goods made abroad. On machine tools this amounts to about 1.25 cents per pound. The trade cannot stand it. This penalty is levied against those industries whose product is entirely the result of labor, while the Standard Oil and Sugar trusts are protected from the competition of the small amount of sugar and petroleum which Russia could ship to this country.

Petroleum is primarily a crude product, and comparatively little labor is employed to refine it. The sugar consumed in the Eastern States, where alone Russian sugar could compete, is virtually all foreign grown; hence the exclusion of the Russian sugar benefits Cuban and South American growers and not our own planters. The actual amount of labor that would be employed to refine the small amount of imported raw sugar which would have been displaced by that refined sugar which Russia could ship here is too small to talk about. America's action in this Russian question was not at all in harmony with the American protective tariff idea. It is a case of favoring two great corporations at the expense of thousands of smaller manufacturers and hundreds of thousands of workingmen employed in machine shops, foundries, rolling mills, blast furnaces, coke ovens, coal and iron mines and on railways. The cost of the crude material in machinery is infinitesimal. At least 80 per cent. of the selling price of the finished article is paid out in wages by the diversified contributory interests.

The great argument advanced in support of the American protective tariff is that it enables employers to pay higher wages than are paid abroad. By cutting off hundreds of thousands of skilled employees scattered all over this country, from the mines of Alabama to the machine shops of Massachusetts, that a few hundred extra laborers may be employed by two trusts and the latter saved from an insignificant competition, neither helps the workingman nor the general prosperity of this country.

In general wealth the countless millions of gold that could be made to flow this way in payment of machinery and other iron and steel products would offset the comparatively few thousands that were paid for a little petroleum. The money paid for Russian sugar would simply be paid out to them, instead of to other foreigners.

France, too, charges from 25 to 50 per cent. more duty on American machinery and other steel and iron products than on German, English or Belgian. When the last treaty with France was negotiated the heads of two of the largest machinery building firms in this country tried to have machine tools included in the list of those articles which were to be admitted into France at the minimum duty, but owing to a lack of co-operation among the trade in general machine tools were left off that list and items representing a much smaller wage outlay and less export possibilities were included, because the corporations interested in other lines fought for their specialties. In many other countries American manufacturers labor under similar disadvantages.

All manufacturers of machinery and other iron and steel products should get together. By presenting a united front Congress could be induced to pass the necessary measures enabling the State Department to negotiate treaties which would put American manufacturers on an equal footing with their German and English rivals. All we want is to have the present discrimination against us removed, and have our goods admitted into foreign markets upon payment of the same customs duties charged our foreign competitors.

Labor Notes

The labor troubles at the optical works at Southbridge, Mass., have assumed more serious conditions since last week because of the attitude of some of the workmen, members of the Southbridge Branch of the Metal Platers', Buffers', Polishers', Brass Molders' and Brass Finishers' Independent Unions of America. These men have resorted to intimidation to prevent other workmen from continuing at work, until the force of the American Optical Company has been reduced to 1100 hands, as against the 1700 hands employed previous to the beginning of the trouble. Several smaller Southbridge concerns are having the same difficulty with their help. An exception is Theodore Harrington, who has given in to the union, and consequently has his 12 employees at work in his shoe knife factory. As *The Iron Age* stated last week, the American Optical Company, acting with smaller concerns of the town, notified their employees that the works were closed for reorganization, and each employee was given an agreement in blank that he or she would have no connection with any labor union, which must be signed before he or she would be re-employed. The works opened again the next morning, and all but 260 of the 1700 hands in the big works reported for work, presenting signed cards. The other workmen proceeded to picket the works and to threaten those who continued at work. Property of these latter workmen has been violated. Several hundreds of women and girls are employed by the American Optical Company, and they, too, have been threatened. As a result many of the more timid workmen and some of the women have left their work, telling their employers that they desired to remain and had no sympathy with the union movement, but feared the consequences. The company have called upon the selectmen of the town for police protection, but the board postponed taking action in the matter. Southbridge, with its 14,000 inhabitants, has 12 policemen, who as yet have done nothing toward quelling disorders growing out of the strike.

The American Optical Company's pay roll is more than $2500 a day for 1700 hands, including a considerable percentage of female labor. The town has never had a union, nor has there ever been a strike. The organization of the union in the optical works was the cause of all the trouble, and the agitators who organized it are now in the town doing what they can to keep the strikers to their task. The American Optical Company are resolved to fight the matter out, even if it should become necessary to shut down the works for an indefinite period, though there is no present intention of taking this step.

The company would have taken no such radical action against the union had it not been for the avowed intention of their leaders to regulate labor in the works, as was evidenced in the case of the Snell Mfg. Company of Fiskdale, where it was demanded less than a fortnight ago that a workman, an officer of this same union, should be reinstated after being discharged for cause. The Snell Company quickly put an end to their trouble by notifying the men that none would be retained in the shop unless he signed an agreement renouncing all connection with any union. All but a few of the men quickly signed. The polishers are making most of the trouble.

The International Silver Company are having trouble with this same union, at their Factory H, at Meriden, Conn. Some of their polishers are on strike because of the company's refusal to reinstate a workman discharged for cause, but the factory is running, the intention being to fill the places formerly held by the strikers.

The courts have made permanent the injunction restraining the striking molders of the Easton Foundry & Machine Company, Easton, Pa., from interfering with

workmen who took their places. The injunction is peculiar in that it is not against the molders' union, but against the molders themselves.

At the bi-monthly wage conference on the bar iron wage scale, held in Youngstown, Ohio, last week, wages of puddlers were reduced from $6 to $5.75 per ton and bar mill rolling and heating to 68½ cents per ton. The conference was attended by representatives of the Amalgamated Association, Republic Iron & Steel Company and Carnegie Steel Company.

PERSONAL.

Robert O. Cumback, for several years with the Central Railroad of New Jersey, and now located at the Elizabethport shops on special work, has accepted the position of superintendent of the new plant of the Pedrick & Ayer Company, located at Plainfield, N. J.

John Calder, formerly with the New York Shipbuilding Company, Camden, N. J., has resigned the position of executive engineer to the C. W. Hunt Company, New York, to become general manager of the Remington typewriter factories at Ilion, N. Y. Before leaving for Ilion he was presented with a handsome silver loving cup. George D. Humphrey made the presentation on behalf of the members and the employees of the C. W. Hunt Company.

Otto C. Burkhart has been appointed superintendent of the Andover Iron Company at Phillipsburg, N. J.

Fritz Gleim has resigned as furnace manager of the Rockhill Furnace Company, Rockhill Furnace, Pa., and is going abroad at an early date.

B. H. Thwaite of Westminster, London, the well-known pioneer in the utilization of waste blast furnace gas, and of producer gas in engines, is now in this country.

The many friends of Edward E. Erikson, the well-known consulting engineer of Pittsburgh, will learn with regret of his serious illness, which will probably result in his death. Mr. Erikson was stricken with apoplexy at his home in Norwalk, Ohio, recently, and has been lying in a very critical condition ever since. He maintained offices in the Shannon Building, Pittsburgh, and was also president of the Norwalk Iron & Steel Company, Norwalk, Ohio.

Graham Fraser has not severed his connection with the Nova Scotia Steel Company in accepting the appointment of consulting manager of the Dominion Iron & Steel Company of Sydney, Nova Scotia.

Edgar Thomson Records.—The famous Edgar Thomson works of the Carnegie Steel Company at Braddock, Pa., again broke records in October. On the 30th of the month there were produced 3743 gross tons of ingots. On the 22d the mill made 3277 gross tons of blooms, and on the 29th there were produced 2939 tons of rails. During October the steel department made 6116 blows, producing 88,068 tons 1980 pounds of ingots, 76,519 tons 2180 pounds of blooms, 65,444 tons 550 pounds of standard rails and 5000 tons 810 pounds of light rails, a total of 70,444 tons 1360 pounds of rails, of which No. 1 rail mill produced 55,388 tons and No. 2 rail mill 15,056 tons. There were also produced 34 tons 1190 pounds of forgings. With the product of the foundry the total finished product in October was 76,032 tons 114 pounds. The furnace department made 109,576 tons 990 pounds of metal. These extraordinary records reflect great credit upon the management, Charles E. Dinkey being general superintendent and John F. Lewis assistant general superintendent.

The Tennessee Coal, Iron & Railroad Company are completing at the Ensley steel plant a 200-ton mixer. There is now being built, to be completed early next year, a 15-ton Bessemer converter, in which the liquid metal from the mixer will be given a preliminary blowing to reduce the contents of silicon and carbon. The partly desiliconized metal will then be transferred to the basic open hearth furnaces. Experiments made with a small converter indicate that the time of the open hearth heat will be reduced by about six hours. One of the present tilting open hearth furnaces will be changed to a stationary furnace, and if this is satisfactory the other nine furnaces will be changed.

MANUFACTURING.

Iron and Steel.

The new wage scale for the coming year, recently formulated by the American Sheet Steel Company, has been signed by the employees of the Scottdale works, at Scottdale, Pa. It goes into effect January 1 and carries a reduction of about 20 per cent. of wages of rollers, heaters and shear men. Common labor will not be reduced.

The Dunbar Furnace Company, operating a blast furnace at Dunbar, Pa., have reduced the wages of their employees about 5 per cent.

Mattie Furnace of the Girard Iron Company, at Girard, Ohio, has been banked and will likely remain idle for some time.

The tearing down of the Neshannock Furnace of the Carnegie Steel Company, at New Castle, Pa., removes one of the oldest blast furnaces in the Shenango Valley. The stack was originally built by the Neshannock Iron Company in 1872, the company at that time being composed of W. E. and George L. Reis and P. L. Kimberly. The stack is 75 x 18½ feet and was remodeled in 1883. It is to be replaced by the Carnegie Steel Company with a modern furnace.

The plant of the Ohio Steel & Iron Specialty Company, at Cuyahoga Falls, Ohio, was purchased last week by Wilkoff Brothers of Youngstown, who are large creditors. It is possible the plant will be removed to Youngstown, but nothing definite will be done until after January 1.

This week additional mills in the Shenango works of the American Tin Plate Company, at New Castle, Pa., will be put in operation. It is probable the finishing department will not resume until early in December. It is expected that both the Shenango works and the Greer works, at New Castle, will be in full operation by the first of the year.

The Duquesne Steel Works of the Carnegie Steel Company, at Duquesne, Pa., which have been idle more or less for some time, are again in operation to full capacity. It is said that a large export order for tin bars will be rolled at this plant.

The stockholders of the Shenango Iron & Steel Company, who recently acquired the Continental Rolling Mill, at Wheatland, Pa., have decided not to operate the plant until conditions in the iron trade show improvement.

St. Ignace Furnace of the St. Ignace Furnace Company, St. Ignace, Mich., is being torn down and removed to Boyne City, Mich., by the Boyne City Charcoal Iron Company.

The new rail mill of the Lackawanna Steel Company of Buffalo made its best run on Saturday, November 14, rolling 1133 gross tons of steel rails in 24 hours.

The Anderson, Ind., plant of the National Tin Plate Company, after a month's shut down, is preparing to resume operations.

The Bon Air Coal & Iron Company will again put in blast the Warner Furnace, near Lyle Station, Tenn.

The wages of the puddlers at the Penn Iron Works, Lebanon, Pa., have been reduced from $4.50 to $4.

Two of the four blast furnaces of the Pennsylvania Steel Company at Steelton, Pa., will be banked a part of this week for repairs. The bridge and construction department is busy with plans for the Blackwell's Island bridge.

The Stewart Iron Works, Sharon, Pa., have a good lot of orders on hand and expect to be in operation for several months. They recently resumed after a shut down for repairs.

The wages of puddlers in the Biandon Rolling Mills, Reading, and the mills of the E. & G. Brooke Company, Birdsboro, Pa., have been reduced from $4.50 to $4 per ton. At the Brooke plant a cut of 10 per cent. has been made in the sheet mill and other departments in proportion.

A receiver has been appointed for the American Galvanizing & Tin Plate Company, Cincinnati, Ohio. The liabilities are placed at $30,000; assets, about $20,000.

The wages of puddlers in the Birmingham, Ala., district have been reduced from $6 to $5.75 per ton. Finishers have received a similar cut.

It is stated that the Birmingham, Ala., mills of the Republic Iron & Steel Company have been shut down indefinitely.

A large force of men are employed at repair work at the mills of the American Tin Plate Company, and the plants of the Carnegie Steel Company, at New Castle, Pa.

The N. & G. Taylor Company, manufacturers of tin plate, Philadelphia, are completing a number of improvements to their works, both at Philadelphia and at Cumberland, Md. The im-

provements at the former place consist of several new departments, including additional warehouses, storage rooms, box factory and blacksmith shop. The tin house also is being enlarged, to give increased lighting and ventilating facilities. At Cumberland the new open hearth furnaces have been completed and are running regularly, together with the new gas producing equipment, consisting of four Forter Miller producers in addition to the old producer capacity. A spacious new warehouse has been completed in the sheet steel department, to provide for the increased business in blue annealed sheets, gauges Nos. 6 to 16, and new annealing furnaces are being built in the black plate department to increase the capacity for black plates for tinning purposes.

The Fairmont Steel Company, Fairmont, W. Va., announce that they have completed a strictly up to date mill for the manufacture of steel rails in standard sections up to 50 pounds and are now ready to fill contracts promptly.

The Lackawanna Steel Company of Buffalo have placed an order for a modern bar mill.

The Aliquippa works of the Crucible Steel Company of America, at Aliquippa, Pa., have been closed down for an indefinite period.

Work is progressing rapidly on the improvements of the furnace plant of the Tennessee Coal, Iron & Railroad Company, at Ensley, Ala. The sixth furnace is being built, and gradually the old Weimer blowing engines are being replaced by Mesta engines. Of the latter, 18 have been ordered, and as they take the place of the Weimer engines, the latter are being erected at Bessemer and Oxmoor, Ala., and at South Pittsburg, Tenn., to strengthen the furnace plants there. In the meantime additional boiler capacity has been provided at Bessemer and at Oxmoor.

General Machinery.

The report that the Epping-Carpenter Company of Pittsburgh, builders of pumps and other machinery, had bought the plant of the Pittsburgh Bridge Company in that city and will utilize it for a large addition to their works, is untrue. The facts are that the Epping-Carpenter Company have only recently completed a very large extension to their works, which they are now occupying.

It is announced from New Haven that some 800 men have been transferred from the New Haven shops of the New York, New Haven & Hartford Railroad, to Readville, Mass., where the company have erected new and very complete repair and construction shops. It is understood that the company will build a large part of their cars at the Readville shops.

The Batavia Woodworking Company, Batavia, N. Y., will erect a three-story brick addition, 50 x 80 feet, to their plant, and equip it with new machinery.

Work has commenced on the improvements to the shops of the Wheland Machine Works, Chattanooga, Tenn., which, when completed, will enable the company to greatly increase their output. There will be a new brick and steel foundry, 110 x 200 feet, with a central bay, 50 feet wide, in which will be installed a 15-ton electric traveling crane. Two cupolas of 60 and 72 inches diameter, respectively, will also be installed in the foundry. The blacksmith shop will be 50 x 100 feet, and the power house 50 x 105 feet. The latter will be equipped with four stationary return tubular boilers, 66 inches x 16 feet, a 16 x 42 inch G. & G. Cooper Corliss engine, 100-kw. generator, and a belt driven air compressor. The company have either purchased or arranged for all the machinery that will be required.

Grays Harbor Iron Works, Hoquiam, Wash., have enlarged their shops. The company are in the market for a traveling crane and other appurtenances that go to make up a well equipped and first-class foundry and machine shop.

The National Twist Drill & Tool Company have been incorporated at Detroit, Mich., with a capital stock of $20,000, to manufacture twist drills, reamers, chucks and other tools and machinery. The officers are: Wm. H. McGregor, president; Peter J. Hornscheid, vice-president; Charles R. Becker, secretary, and A. W. Ehrman, treasurer. The Board of Directors consists of the officers and Wm. H. Warren, George M. O'Connor and Richard Watson. The company have a full equipment of machinery, but will appreciate catalogues of special machinery.

The Racine Boat Mfg. Company, Racine, Wis., are building a new plant at Muskegon, Mich., consisting of a brick foundry, 104 x 116 feet; machine shop, 60 x 116 feet; power house, 40 x 80 feet; wood working machine shop, 60 x 80 feet; frame building for large steel work, 80 x 200 feet, with double ways; frame building for main launch department, 66 x 200 feet, and three stories high; storage and finishing room, 60 x 200 feet. The power house will be equipped with a 250 horse-power Nordberg Corliss engine, 125 revolutions per minute, with 150-kw. Northern generator and a 400 cubic foot Nordberg air compressor, furnishing electrical power throughout the entire plant.

W. W. Stall, president and manager of the Factory Exchange of Boston, Mass., has just closed a deal, real estate agreements having been signed covering one of the finest water front locations in East Boston. It includes valuable wharf privileges and improved structures and will be occupied by a leading Boston concern for the manufacture of patented specialties in the machinery line, full details of which will appear later. The property contains about 2½ acres and is valued at nearly $50,000.

Geo. C. Keene & Co., manufacturers of sheet metal working machinery, Cincinnati, Ohio, have been kept busy right along. Among the latest shipments made were the following: Six-foot multiple punch to the Wm. Miller Range & Furnace Company, Cincinnati; slip roll curving machine for the production of sewer pipe from corrugated iron, to Crawfordsville, Ind.; 8-foot flanging machine to Schneider & Trenkamp, Cleveland, Ohio; complete range making plant to the Royal Stove & Range Company, Greenville, Ohio; complete roofing plant to the Wunderlich Patent Ceiling & Roofing Company, Sidney, New South Wales, and a number of special machines to the South. In addition to these a considerable export business has been closed with New York brokers.

Armour & Co., Union Stock Yards, Chicago, have prepared plans for new car shops, which will include the following one-story buildings: An erecting shop, 64 x 140 feet; machine and blacksmith shop, 50 x 150 feet; wood mill, 50 x 150 feet; tin and galvanizing shop, 40 x 80 feet; office and storeroom, 50 x 150 feet; scrap and bolt shop, 20 x 50 feet; alterations to icing station, 100 x 100 feet; paint shop, 30 x 50 feet, and boiler house and dry kiln, 25 x 85 feet. The buildings will be of brick construction and are estimated to cost $75,000.

The Vilter Mfg. Company, Milwaukee, Wis., prepared plans and have received the general contract for the plate ice plant for the Krantz Brewing Company, Findlay, Ohio. The machinery for the plant will cost $25,000.

The Angola Engine & Foundry Company, Angola, Ind., inform us that they will not build the proposed addition to their plant until spring, at which time they will need considerable new machinery, such as sheet iron shears, punches, &c. The building is to be used for assembling machinery, more particularly for the parts of their hot air heating furnaces.

Power Plant Equipment.

The Oshkosh Grass Matting Company, Oshkosh, Wis., inform us that they have let no contracts for power plant equipment and are in the market for about 150 horse-power engine, boilers, shafting, hangers, &c. They are erecting a $75,000 plant, to consist of a main building 60 x 250 feet, warehouse 60 x 150 feet, and power house.

Negotiations have been closed by which the machine shop of the Iowa Iron Works Company, Dubuque, Iowa, has been transferred to the Klauer Mfg. Company of that city, who will take possession December 1. The Iowa Iron Works Company intend to erect a boiler shop as an addition to their shipyards, and when this is completed will have their entire plant centralized. No new machinery will be required.

The Indiana Pipe Line Company, Montpelier, Ind., are converting the oil pumping station at Dundee, Ind., from a steam engine station to a gas engine station.

The Beaumont & Sour Lake Construction Company, Beaumont, Texas, have not yet let the contract for their power house and trolley system between Beaumont city and Sour Lake. They expect to operate trains with steam temporarily, or perhaps during the winter, and will complete the entire system from Beaumont to Port Arthur and from Sour Lake to Saratoga during the coming year. They will place the contract for the power house, &c., some time during the winter.

The People's Light & Railway Company, Streator, Ill., intend installing an electric lighting plant in that city. A new dynamo, engines, &c., will be purchased, giving the capacity of the plant at first 5000 lights. Two miles of additional railway will also be constructed.

The Racine Engine & Iron Works, Racine, Wis., have increased their capital stock to $150,000 for the purpose of increasing the facilities of their plant.

The Grove City Gas Engine Works, Grove City, Pa., are very busy.

The Erie, Baltimore & Ohio, Pittsburgh & Lake Erie, Pennsylvania and Lake Shore railroads are considering the erection of a large electric lighting plant at Youngstown, Ohio, which will light the yards of the several railways with arc lights and will also light the yards and stations in Sharon and New Castle. If the plant is erected it will be owned jointly by the roads served by it, and it will be the greatest improvement made by the railway interests for a long time.

The Kane Boiler Company, Kane, Pa., have added a punching and shearing machine to their equipment.

The General Electric Company have been awarded the contracts for transformers aggregating 45,000 horse-power for the Necaxa, Mexico, city power system of the Mexican Light & Power Company. Another Mexican contract awarded the General Electric Company is for the electric equipment of the Guanajuato Consolidated Mining & Milling Company; this equipment to replace steam power.

The Mediterranean Thomson-Houston Company, a part of the General Electric interests, have the contract for the hydraulic plant and its electric equipment at the base of Mt. Cenis, in Italy, to furnish power for the city of Turin. The initial capacity will be 4200 kilowatts. There will be three 12-pole turbines,

driving three-phase alternators of 1400 kilowatts each. The generating pressure will be 3000 volts, with a line pressure of 30,000 volts. The high potential transmission will be 40 miles.

The Atlas Engine Works, Indianapolis, which during the rush of summer business gave employment to about 2000 men, have cut the force to its normal proportions, between 1200 and 1400. Most of those let go were day laborers.

Charles Pfeiffer, manufacturer, of Akron, Ohio, is negotiating with Muncie, Ind., to establish a wood working plant that will give employment to 300 men.

The Northwestern Gas & Electric Company, Walla Walla, Wash., will receive bids until February 15 for the proposed $250,000 hydro-electric station on Walla Walla River. Samuel Storrow, Douglas Building, Los Angeles, Cal., is engineer in Charge.

The Browning Company, Milwaukee, Wis., report contracts taken during October for some twenty odd electrical motors for the J. H. McFarland Printing Company, Harrisburg, Pa. They have also secured the contract for 33 motors for the Palmer Printing Company, Philadelphia; 13 motors for export to Paris; also the complete lighting and power equipment of the Lexington Brewing Company, Lexington, Ky., and a number of other orders of similar magnitude. They report the outlook for business for the winter as being very bright.

Foundries.

The Ironton Disc Plow Company of Ironton, Ohio, have leased the plant of the Ironton Foundry Company, and will utilize it for the manufacture of castings.

The Bessemer Foundry, at Grove City, Pa., has plenty of orders on hand, and will operate steadily for several months.

The Union Machine Company, Nashville, Tenn., have purchased a tract of land on the Tennessee Central Railroad in West Nashville, where they will erect an additional foundry. The building will be about 100 x 180 feet, and will be equipped with modern machinery. The company have a number of important contracts on hand, and these have necessitated enlarging the facilities.

The Howard Iron Works, Buffalo, N. Y., manufacturers of electric and hydraulic elevators, transmission power machinery, bolt cutting machinery, ice machines, &c., will occupy their new foundry about December 1. The dimensions of the building are 92 x 180 feet, besides the cupola house, and the equipment is modern on every respect, making it one of the most complete foundry plants in Buffalo. It will be operated by Niagara Falls electric power, with separate motors for blowers, tumbling mills, sand shifters, cranes, &c A 10-ton electric traveling crane covers the full length of the foundry. The company have many orders in hand and expect to continue working full time during the winter.

At the annual meeting of the stockholders of the Standard Malleable Iron Company, Muskegon, Mich., held November 5, the following directors were elected: Dr. J. H. Belt, Cleveland; H. J. Sherwood, Cleveland; Thomas Hume, W. H. Mann and E. L. Howe, Muskegon. The directors subsequently elected the following officers: President, E. L. Howe; vice-president, Dr. J. H. Belt; treasurer, Thomas Hume, and secretary, W. H. Mann.

Several new buildings are being added to the plant of the Colean Mfg. Company, Peoria, Ill. The improvements involve an expenditure of about $25,000, and include a foundry, 50 x 120 feet, and pattern shop, 20 x 50 feet, both two stories high.

Extensive improvements are being made to the Gate City Foundry plant at Winona, Minn., the additions being necessitated by the rapidly expanding business.

The Champion Blower & Forge Company, Lancaster, Pa., continue busy, particularly in their line of No. 400 blowers, of which 100,000 have already been sold. To meet the general demand for their various lines it will be necessary for them to increase their facilities in several directions. In view of this, ground aggregating 3 acres, adjacent to their works, has been purchased, and they now contemplate the erection of a new foundry, 60 x 300 feet, on a portion of this ground. Plans for the new addition are now in course of preparation.

The National Malleable Casting Company, operating a large plant at Sharon, Pa., will soon start upon a new addition to their works, 40 x 84 feet, in which they will manufacture railroad coupling pins.

Bridges and Buildings.

The contract for the structural steel work on the new Preston Hotel at Louisville, Ky., has been awarded to Grainger & Co. of that city. The amount of the contract is about $70,000.

The Indiana Bridge Company, Muncie, Ind., have secured contracts for five bridges in the vicinity of Muncie, the aggregate amount of the contracts being $12,000.

The Schuylkill Valley Bridge Company, Reading, Pa., have resumed operations after having greatly improved their plant.

The New York, New Haven & Hartford Railroad announce that they will build a double track steel bridge across the Connecticut River at Windsor Locks, to be a part of their main line system between Springfield and New York. The present bridge is too light for their heaviest engines.

Recent contracts secured by the Joliet Bridge & Iron Company, Joliet, Ill., are as follows: Structural and ornamental iron work for new post office at Springfield, Ill.; structural steel for new court house at Monticello, Ill.; structural steel for an addition to the deaf and dumb institute at Jacksonville, Ill.; new steel work for the west house at the Joliet penitentiary; structural steel work for new library building at Joliet; three buildings for the Farwell Portland Cement Company, Farwell, Mich., including mill building, furnace building, engine and boiler room; structural steel for roof for car barn for the Los Angeles Traction Company, Los Angeles, Cal.; Kankakee (Ill.) river bridge, and a 100-foot span bridge across Hickory Creek at New Lenox, Ill.

Fires.

E. F. Colvin's machine shops at Milton, Pa., were recently damaged $5000 by fire.

The fertilizer building of the Nelson-Morris Packing Company, at East St. Louis, Ill., was destroyed by fire November 12. The loss is placed at $100,000.

The buildings at Tacoma, Wash., occupied by the H. N. Richmond Paper Company and the Great Western Stove Company were destroyed by fire November 15, causing a loss of $75,000.

Lamel & Co.'s boot and shoe factory, Montreal, Canada, was destroyed by fire November 15, entailing a loss of $60,000.

Hardware.

Lamb Wire Fence Company, Adrian, Mich., have increased their capital stock from $400,000 to $500,000. All the additional stock has been subscribed and paid for. The purpose of the increase was to keep their capital somewhat proportionate to their extending business, and to provide for expenditures in the way of enlarging their plant. This increased capacity now gives them an output of about 100 miles of standard fencing on single turn of ten hours.

The Jacobs Mfg. Company, Hartford Conn., have been incorporated under Connecticut laws with a capital stock of $50,000, to manufacture machinery and tools. The incorporators are Arthur I. Jacobs of Hartford and L. W. Ripley and Henry S. Goslee of Glastonbury, Conn. The company have been successfully engaged in the manufacture of the Jacobs improved drill chuck for some time.

The Buffalo Bolt Company's plant, North Tonawanda, N. Y., which had been closed for over a month for repairs, resumed operations Monday.

A new factory and storehouse building will be erected at Causeway and Beverly streets, Boston, to be occupied by the American Glue Company. The building will be 120 x 140 feet, and five stories.

Notices have been posted at the Peck, Stow & Wilcox Company's edge tool factory, Southington, Conn., that a five-day schedule will prevail until further notice.

The L. B. Rowell Company, Menominee Falls, Wis., recently reorganized, have decided to build a new plant, which will enlarge enough to give employment to from 50 to 75 men.

Chapman & Smith Company, Chicago, manufacturers of specialties in grocers', bakers' and confectioners' tools and machinery, purpose the erection of a six-story manufacturing and warehouse building, 94 x 125 feet. This improvement has been necessitated by the material growth of the company's business. What was a market basket factory 25 years ago has since developed into a large plant, producing all the essentials of the groceryman's and affiliated trades' specialties.

The Piqua Handle & Mfg. Company, Piqua, Ohio, are moving one of the departments of their business to the timber district in Michigan, but their general line of special turnings will continue to be manufactured at Piqua. The removal of this department will vacate what is referred to as a very desirable site for the production of iron specialties requiring wood handles. For the supply of the latter the company would be pleased to make advantageous terms.

The shovel plant of the Geo. Griffiths Company, at Eighth and Jackson streets, Philadelphia, has been shut down, and the machinery is now being moved to the T. Rowland's Sons' plant, near Cheltenham, Pa. It is expected that all of the Griffiths workmen will be given employment at the Rowland plant.

Grand Rapids Refrigerator Company, Grand Rapids, Mich., are operating their new department for enameling sheet steel with real porcelain enamel. This lining is used on their refrigerators and is calculated to make them very popular with the trade.

The Baldwin Refrigerator Company, Burlington, Vt., whose line of refrigerators is an extensive one, have not added many new styles for the coming season. They have, however, brought out half a dozen popular sizes in apartment house goods, with lift lids and open front, tile lined; also three new metal lined apartment house sizes, three new family sizes with long water coolers, and three medium priced roll top grocers' sizes.

The following officers were elected for the ensuing year at the meeting of directors of the Farm Tool Mfg. Company, Carrollton, Mo., held November 3: President, W. E. Hudson; vice-

president, J. N. Tuley; secretary, J. F. Hazel: auditor, E. J. Rea. In their line of hay stackers, drag rakes, cultivators, &c., the company reported a very prosperous business during the past year.

The Greene-Ennis Fence Company, Reading, Mich., have been incorporated with a capital stock of $80,000. The directors of the new company are Richard H. Hill, E. J. Ennis, F. R. Robson, Ivan R. Hill, Wm. H. Lockerby, Erwin O'Hanlon, Arthur V. Henry and Morris I. Meigs. Geo. E. Crane is president, Andrew L. Kinney secretary and Henry F. Doty treasurer.

The Wrightsville Hardware Company, Wrightsville, Pa., have recently shipped several carloads of tobacco cutters to Winston, N. C., for the American Tobacco Company. They also report an increased foreign demand for sad irons, casters, hammers and hatchets, large quantities of which are being shipped for export.

Miscellaneous.

To their employees the three largest coal companies in the Pittsburgh district paid last week over $800,000. The Pittsburgh Coal Company paid $500,000, the Monongahela River Consolidated Coal & Coke Company paid $250,000, and the Pittsburgh & Buffalo Company paid $60,000. This was two weeks' pay, and its size indicates the great activity in the bituminous coal industry.

Work has been stopped on the building of the new coke ovens by the United States Coal & Coke Company, at Tug River, W. Va. This is an interest of the United States Steel Corporation, and it was the intention to eventually build 3000 coke ovens at this place. About 1200 ovens have been completed, but the balance will not likely be built for some time.

The factory building at Binford and Wormwood streets, Boston, recently destroyed by fire, will be rebuilt for general manufacturing purposes. It will be 75 x 210 feet and six stories. Elevator, steam heating and electric plants will be installed.

The Grout Bros. Automobile Company, Orange, Mass., announce that they are to add a line of gasoline carriages to the product of their shops. Their line of steam carriages will be continued, the purpose being to suit both classes of customers. The company contemplate building a new foundry and otherwise adding to their plant, but are not ready to make a definite statement as yet.

The Newport Fertilizer Company, Philadelphia, have not yet made plans for rebuilding their plant at Riverside, Del., which was recently destroyed by fire, and no machinery has been purchased.

The Junior Coal Company, Old Colony Building, Chicago, have had plans prepared for a coal yard at Fifty-seventh and Wallace streets. The improvements call for timber bulkheads and sheds, to be equipped with electric machinery, metal pockets, conveying machinery and steel and wood trestle. The total cost will be about $40,000.

August Rahner, Villisca, Iowa, inventor of a new hot water boiler, has made an agreement with the Bowers Mfg. Company, Clarinda, Iowa, whereby the company are to make one of the boilers to test its efficiency, and if it proves satisfactory they will then manufacture and market it, paying Mr. Rahner a royalty.

The J. I. Case Plow Works, Racine, Wis., recently increased their capital stock to $650,000, of which $400,000 is common stock and $250,000 preferred. The officers of this company are: H. M. Wallis, president and treasurer; A. H. Harris, first vice-president; William Sobey, second vice-president and superintendent; R. C. Anderson, secretary; Chas. Armstrong, assistant secretary; L. Shibsby, assistant treasurer.

The Washington Coal & Coke Company of Elkins, W. Va., will increase their capital stock from $2,500,000 to $5,000,000, and have asked for authority to hold 15,000 acres of land. Henry G. Davis is president.

The recently incorporated Holyoke Valve & Hydrant Company, Holyoke, Mass., have purchased the plant and business of the Kennedy & Sullivan Mfg. Company, at 45 Race street, also the patents on the Sullivan quick opening hydrant. It is their intention to increase their facilities for the manufacture of brass fittings, valves and hydrants, and to greatly extend their line of brass and iron pipe, steam fitters' supplies and steam and hot water valves of every description. The officers are: F. H. Metcalf, president; J. J. Sullivan, vice-president and manager; F. A. Smith, treasurer, and C. I. Newcomb, consulting engineer. These with A. A. Coburn, D. F. Cleary and M. H. Whitcomb are the directors.

The Burrell Engineering Company, Chicago, are preparing plans for a grain elevator to be built for Shearer Bros., Stewart, Ill. The building will be 36 x 36 x 41 feet, and will be equipped with 12 horse-power Fairbanks gasoline engine, one 4-ton wagon scale, two stands elevator legs, and two dumps.

Peterson, Seburn & Co., Pittsburgh, riggers of structural iron, erectors and movers of heavy machinery, have a large amount of work on hand at the present time. Among this is taking down the old Westinghouse Foundry, on South Carson street, Pittsburgh, including traveling cranes and cupolas, and re-erecting it complete at Chambersburg, Pa.; erecting two buildings for the Railway Steel Spring Company, East St. Louis, Ill.; erecting a building for the Interstate Steel Company at Avenue, Pa., and erecting a building for the Hussey-Binns Company at Charlerol, Pa. They are also erecting all the boilers, engines and electrical equipment for the Pittsburgh Block Coal Company at Unionvale, Ohio.

The Eclipse Mfg. Company, Incorporated, Detroit, Mich., have been organized to manufacture the Eclipse ball bearing trolley base and tools, dies, models, &c. The incorporators and officers of the company are: Jas. Kermath, president; T. E. Piper, vice-president, and T. S. Newton, secretary and treasurer.

The New York Shipbuilding Company, Camden, N. J., have been awarded by the Lighthouse Board, Washington, contracts for the construction of five lightships, at their bid of $82,000 each.

The West End Chain Company, Lebanon, Pa., have been given two large contracts by the United States Government. The puddlers at the plant have had their wages reduced from $4.50 to $4 per ton.

The Tallerday Steel Pipe & Tank Company, Waterloo, Iowa, have erected a plant in Los Angeles, Cal., to take care of their Pacific Coast trade. The main building is 50 x 150 feet, and will be modernly equipped. The machinery now being installed includes a number of single punching presses, one multiple punch, squaring shear, manufactured by the Niagara Tool Works, Buffalo, N. Y.; heavy drill presses, machines for cutting angles, channels, &c.; and special equipment built by themselves for the manufacture of pipes, tanks, wind mill regulators, feed cookers, &c. A 20 horse-power motor will also be installed. All the tools with the exception of the motor have been ordered. This branch will be operated under the name of the Tallerday Mfg. Company, recently organized with a capital stock of $30,000, and will be in charge of F G. Tallerday. From the number of orders already booked for the new plant and the large deals under way, the company are confident that they will be compelled to make extensive improvements in a short time

The recent fire at the plant of Bridgeford & Co., Incorporated, only destroyed one of the warehouses, which was detached from the plant. None of the machinery was damaged and the operation of the plant was in no way interfered with.

The Standard Steel Car Company of Butler, Pa., are building a new style of gondola car for the Chicago, Burlington & Quincy Railroad. The new car is known as the McCaslin drop car. It has six instead of two doors on its bottom, and they are attached to the sides and operated by ratchets at the ends of the car, instead of dropping from the center, as they do on old style cars. One thousand are being built.

The James Beach & Sons Soap Company, Dubuque, Iowa, will build a four-story brick addition to their factory, 60 x 72 feet. The building will be completed in the spring, at which time machinery will be purchased for equipment.

The Inland Steel Company have closed down their mills at Indiana Harbor, Ind., because the 350 employees of the sheet mill refused to accept a cut in wages that would place this mill on a par with independent mills in the Pittsburgh district. Men have been paid on the Amalgamated scale, the least point of which is based on a price of 3 cents, Pittsburgh, for 27 gauge. Employees were asked to stand a cut to the basis of the present price of steel. The closing of the sheet mill will make it necessary to close down most of the balance of the plant. As this is the leading mill in the Indiana Harbor district, local merchants used every endeavor to bring about a settlement that would obviate the shut down, but without success.

On account of the depressed state of the building industry, brought about by the constant labor disturbances, the United States Realty Company, New York, have greatly reduced the working force of their construction department, operated by the George A. Fuller Company. They have a great many contracts on hand which will be carried through, but until labor matters in the building trade are more stable it is probable that no new contracts will be undertaken, except under favorable conditions. It is stated that the building industry has received a serious setback for the winter, and that far less than the normal business will be done.

The Atchison, Topeka & Santa Fé Railway Company are arranging to extend the use of fuel oil in their locomotives to the division of their line between Seligman and Winslow, Ariz., and already have about completed two 25,000-barrel reservoirs each at Ash Fork, Williams and Winslow, and two 50,000-barrel reservoirs each at Seligman and Flagstaff. Oil burning engines are already in use on all of the company's lines in California and as far east as Seligman, in Arizona.

The Iron and Metal Trades.

Some of the makers of Southern Iron continue in the course which they have pursued for some time, and $9.25 for No. 2 Foundry, Birmingham, is now freely done, with unconfirmed reports of even lower figures. One point is worthy of being noticed: Buyers, naturally critical in such a market, are demanding guarantees as to silicon contents, which the greater part of the Southern Iron, although fully up to grade as to fracture, cannot meet. The result that is that founders must turn to corresponding though higher priced Northern Irons. During the week there have been several large sales, one being a lot of 10,000 tons purchased by a leading firm of merchants to meet urgent requirements of customers. Nearly all the business being done is for prompt delivery, and serious negotiations for 1904 delivery have not yet begun.

Producers who are thoroughly well informed concerning what has been done thus far in the direction of an export of Southern Iron state positively that thus far only two lots of 500 tons each have been actually shipped.

The Billet manufacturers, at their meeting last week, adjusted pending matters so that the association is intact until the end of the year. Another meeting is to be held next month to take action on a continuance of the gentlemen's agreement for 1904. The low price of Basic Pig and the very low figures at which Melting Scrap is selling are making low cost to small open hearth plants possible, and reports are current even now that outside works are shading the official prices.

The Steel Rail manufacturers at their last meeting made no change in prices. They are giving close attention to export orders. It is true, as reported by foreign cables, that the Maryland Steel Company have taken an order for 20,000 tons for delivery at Beirut. The reported price is not confirmed, but it is stated that other makers who bid $19, f.o.b. Atlantic ports, lost the order.

The Plate and Structural trades are very quiet. The outlook for the building trade for the coming winter is regarded as quite gloomy.

Somewhat conflicting reports come to hand on the question of the effect of the sharp reduction in Steel Bars. In some quarters a somewhat improved demand is noted. In others the attitude of buyers is described as unchanged. They do not respond. In the Sheet trade the leading interest has made a readjustment of prices which brings values down to 2.35c. for Pittsburgh for No. 27.

Even in the Pipe and Wire trades, which have enjoyed such an extraordinary run of work, there is some slackening and moderate concessions are being made.

There is a good deal of exaggeration in the reports of exports of Iron and Steel, the tonnage being really moderate. The Wire and Tube interests have kept up export shipments during the whole of the boom times, so that the tonnage in these lines cannot be claimed as anything that is new. The railroad interests are to meet to-morrow to determine what concessions in freights are to be made on export shipments of Iron and Steel.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type. Declines in Italics.

At date, one week, one month and one year previous.

	Nov.18, 1903.	Nov.11, 1903.	Oct.21, 1903.	Nov.19, 1902.
PIG IRON:				
Foundry Pig No. 2, Standard, Philadelphia	$15.00	$14.50	$14.75	$23.50
Foundry Pig No. 2, Southern, Cincinnati	*11.75*	12.25	13.00	22.25
Foundry Pig No. 2, Local, Chicago	*14.50*	14.50	15.50	23.00
Bessemer Pig, Pittsburgh	*15.10*	15.10	15.85	22.00
Gray Forge, Pittsburgh	*13.00*	13.00	14.00	21.00
Lake Superior Charcoal, Chicago	*17.00*	17.00	17.50	26.00
BILLETS, RAILS, &c.:				
Steel Billets, Pittsburgh	*23.00*	23.00	27.00	28.00
Steel Billets, Philadelphia	*24.25*	25.00	26.50	26.50
Steel Billets, Chicago	*24.00*	24.00	28.00	29.00
Wire Rods, Pittsburgh	*31.00*	31.00	34.00	35.50
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00
OLD MATERIAL:				
O. Steel Rails, Chicago	*11.00*	12.50	13.50	18.75
O. Steel Rails, Philadelphia	*12.00*	12.25	13.75	21.00
O. Iron Rails, Chicago	17.00	17.00	17.00	24.50
O. Iron Rails, Philadelphia	*16.00*	16.50	17.50	24.00
O. Car Wheels, Chicago	*15.00*	17.00	18.00	24.00
O. Car Wheels, Philadelphia	*15.00*	15.00	16.50	20.00
Heavy Steel Scrap, Pittsburgh	*12.50*	14.00	15.00	21.00
Heavy Steel Scrap, Chicago	*11.00*	12.00	13.00	18.50
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	*1.40*	1.40	1.50	1.85
Common Iron Bars, Chicago	1.40	1.40	1.40	1.75
Common Iron Bars, Pittsburgh	*1.35¾*	1.30	1.45	1.70
Steel Bars, Tidewater	1.44½	1.44½	1.70	1.75
Steel Bars, Pittsburgh	*1.30*	1.30	1.60	1.60
Tank Plates, Tidewater	1.78	1.78	1.78	2.10
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.75
Beams, Tidewater	1.73½	1.73½	1.73½	2.00
Beams, Pittsburgh	1.60	1.60	1.60	2.00
Angles, Tidewater	1.73½	1.73½	1.73½	2.00
Angles, Pittsburgh	1.60	1.60	1.60	2.00
Skelp, Grooved Iron, Pittsburgh	*1.35*	1.35	1.50	1.92½
Skelp, Sheared Iron, Pittsburgh	*1.40*	1.45	1.60	2.05
Sheets, No. 27, Pittsburgh	*2.35*	2.40	2.50	2.65
Barb Wire, f.o.b. Pittsburgh	2.55	2.60	2.60	2.45
Wire Nails, f.o.b. Pittsburgh	2.00	2.00	2.00	1.85
Cut Nails, f.o.b. Pittsburgh	*1.90*	1.90	2.15	2.05
METALS:				
Copper, New York	*13.00*	13.50	13.12½	11.40
Spelter, St. Louis	*5.00*	5.25	5.45	5.05
Lead, New York	*4.10*	4.40	4.40	4.10
Lead, St. Louis	*4.20*	4.20	4.25	3.97½
Tin, New York	*25.10*	25.00	25.70	25.12½
Antimony, Hallett, New York	6.25	6.25	6.25	7.25
Nickel, New York	40.00	40.00	40.00	40.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York	3.79	3.79	3.99	3.79

Chicago.

FISHER BUILDING, November 18, 1903.—(*By Telegraph.*)

These are the days when the buyer wields the whip, and he is making it sting quite as keenly as did the producer a year ago. No concession in prices will satisfy him, and though his yards and bins and stock rooms are empty, he declines to buy until he shall have turned the screw to the utmost limit. Pig Iron is $10 a ton below what it was January 1 and $12 a ton below a year ago, and yet the buyer is not satisfied. Bar Steel at $6 a ton below the prices of ten days ago is moving not more rapidly than it did at the higher prices. Even the ruinous cut to 1.60c. from store on Bar Steel made by two Chicago firms has given little, if any, stimulus to the store business on that commodity. The sellers have caught the apathy of the buyer and are making little effort to overcome his inertia, confident that a time is not far off when the reins will again be transferred from the hand of the buyer to that of the producer and seller. The buyer has insisted on suplying only his hand to mouth needs for the last few months on a falling market. The seller has made up his mind that when prices do begin to rise the buyer shall be compelled to buy in a similar hand to mouth method, refusing to make long time contracts on many commodities, notably on Pig Iron. It is felt here that no material change, either for better or for worse, will take place between now and January 1, but that on or about that time there will be something doing, and that the pent up waters of business will break their bounds and give us all a rushing time of it.

Pig Iron.—Pig Iron may be said to be 25c. per ton lower than last week's quotations, though in many grades there is no change, and in Malleable and Standard Bessemer our last week's quotations are raised, because the only producers of these Bessemers, particularly the Standard, refuse to market their product at the customary advance over regular Northern Irons. There are only three furnaces in blast in the Northwest—two of the Iroquois and one Thomas furnace. Duluth, Spring Valley and South Chicago have all closed. Bay View has closed one and will doubtless blow out the other by the time this paper reaches its readers. For this reason producers of Northern Iron recognize the folly of further cut in prices, as foundrymen must have Northern Iron, and no reduction below the present extremely low prices would stimulate buying. In the South the effort to hold prices squarely at $9.50 has apparently failed, as $9.25 is quite freely quoted, making the price here $13.10 to $13.60 on Southern No. 2, with one 500-ton lot said to be sold at a shade below the minimum price. This is the lowest price that has been reached since February, 1899, and exactly $10 less than it was January 1 of this year, and producers agree that the cost of making Iron to-day is very much in excess of what it was in 1899, both because of the increase in labor and of the greater expense connected with mining Ore, Fuel and Limestone. Business in Pig Iron continues to be of a hand to mouth character with a few exceptions, and the market may safely be said to be extremely dull. We quote car lots or greater, f.o.b. Chicago, at the prices below, the lowest named prices representing orders placed in large quantities for prompt delivery:

Lake Superior Charcoal	$17.00 to $18.00
Northern Coke Foundry, No. 1	15.00 to 15.50
Northern Coke Foundry, No. 2	14.50 to 15.00
Northern Coke Foundry, No. 3	14.25 to 14.50
Northern Scotch, No. 1	16.00 to 16.50
Ohio Strong Softeners, No. 1	16.80 to 17.05
Ohio Strong Softeners, No. 2	16.30 to 16.80
Southern Silvery, according to Silicon	14.85 to 15.35
Southern Coke, No. 1	13.60 to 14.10
Southern Coke, No. 2	13.10 to 13.60
Southern Coke, No. 3	12.60 to 13.10
Southern Coke, No. 4	12.10 to 12.60
Southern Coke, No. 1 Soft	13.60 to 14.10
Southern Coke, No. 2 Soft	13.10 to 13.60
Foundry Forge	12.10 to 12.60
Southern Gray Forge	11.85 to 12.35
Southern Mottled	11.85 to 12.35
Southern Charcoal Softeners, according to Silicon	17.85 to 18.85
Alabama and Georgia Car Wheel	21.85 to 22.85
Malleable Bessemer	15.00 to 15.50
Standard Bessemer	15.50 to 16.00
Jackson County and Kentucky Silvery, 6 to 10 per cent. Silicon	18.30 to 19.80
Basic Southern	13.85 to 14.35

Producers are firm in their refusal to make longer than 60 to 90 day contracts at any price and name to-day's lowest quotations only on immediate shipment. Iron on track here is easily sold in carloads at the higher prices named in our schedule.

Bars.—Bar buyers are not responding to the cut of $6 per ton in Steel Bars which was announced last week. On the contrary, they seem to accept this cut as an evidence of weakness and are disposed to continue to play a waiting game. This is also true of the store business in Bars, as the sensational cut to 1.60c., base, per 100 lbs., from store, by two large antagonistic interests here has stimulated buying but little. At this price of 1.60c. a Chicago consumer can buy from store 500 lbs. of Steel Bars at a base price 30c. per 100 lbs., or $6 per ton, lower than he could secure the same Bars from any Pittsburgh mill. Even at 1.75c., at which price most of the jobbers are holding Steel Bars from store, the buyer of a 500-lb. lot saves 10c. per 100 lbs. as compared with the cost of the same shipment delivered from Pittsburgh mill. It will be seen, therefore, that the jobbers are not only giving away all the differentials which the mills have built up for their protection, but selling far below their own first cost, to say nothing of the cost of storing and handling. Another noteworthy feature in the Bar Steel market is the announcement that on sizes larger than 3 inches only one-quarter extras instead of one-half extras will be charged. This reduction in extras was doubtless made to prevent importation of large Rounds and Squares, which European makers sell at a flat price without extras. It is a beautiful example of padlocking the barn door six months after the horse is stolen. We quote as follows: Steel Bars, carload lots from mill, f.o.b. Chicago, 1.46½c., base, half extras on small sizes, quarter extras on large sizes; Iron Bars, 1.40c. to 1.45c., half extras; less than carload lots, Iron and Steel, 10c. per 100 lbs. extra; less than 2000 pounds of a size, 10c. per 100 lb. extra; less than 1000 lbs. of a size, 30c. extra; Steel Hoops, carload lots, Chicago, for shipment from mill, 1.91½c., base, full extras; 250-ton lots, 1.81½c.; less than carload lots, 10c. above carloads; quantity differentials to apply same as on Bars. Steel Bars from store, 1.60c. to 1.75c., with half extras on small sizes and quarter extras on large sizes; Iron Bars, 1.75c. to 2c. from store, full extras; Steel Hoops from store, 2c. to 2.30c. rates, full extras.

Structural Material.—General disappointment is expressed over the refusal of the manufacturers of Structural Steel to reduce the prices on that product in proportion to the reduction on Bars, and the opinion is expressed that a reduction to 1.30c. or 1.40c. basis on Structurals would stimulate into life many large building operations that are now moribund. The sellers, on the other hand, argue that the apathy with which the cut in Bars was greeted is a good indication of what would happen in the Structural market. It is understood here that the refusal to reduce prices was made in order to give jobbers all over the country an opportunity to unload the large tonnage of Steel that they have had on hand without serious loss. It is rumored that when the price is changed on Structurals there is a possibility of an adoption of a series of extras that will give the mills a chance to make a little money on the 3 to 6 inch sizes, which now show a loss as compared with the larger sections. It is also understood that a straight Pittsburgh basing price will be adopted to which full freight will be added to destination instead of the somewhat unfair territorial schedule that is now in vogue. The price remains at 1.75c., Chicago, for I-Beams and Channels, 15 inches and under, and Angles, 3 inches on one leg and larger, with the regular 5c. extras for T's, 3 inches and larger. From store Structurals are being sold at 1.90c., cut to lengths 5 feet and over.

Plates.—Contrary to the prediction of buyers in this market and sellers, too, for that matter, the price of Plates remains unchanged. Buying is practically at a standstill, except for immediate necessities, and will continue to be of this character until the looked for reduction is announced. We quote official prices for shipment from mill as follows: Tank Steel, ¼ inch and heavier, 1.75c. to 2c.; Flange, 1.85c. to 2.15c.; Marine, 1.95c. to 2.10c.; Universal Mill Plates, 1.75c. to 2c. Plates from store continue to be sold at 2c. for ¼ inch and heavier, 2.10c. for 3-16 inch and 2.15c. for No. 8, with 10c. extra for Flange quality.

Sheets.—There is practically no change in prices of Sheets, and not a very strong tone for the market in spite of the fact that the largest Western producer has at least temporarily withdrawn from the market. Nos. 10 and 12 are a shade stronger than our published quotations of last week, No. 10 selling at 1.91½c. to 2.01½c, and No. 12 at 2.01½c. to 2.06½c. The following seems to be a fair statement of local car lot prices for mill shipment, delivered at Chicago: No. 10, 1.91½c. to 2.01½c.; No. 12, 2.01½c. to 2.06½c.; No. 14, 2.06½c. to 2.16½c.; No. 16, 2.16½c. to 2.26½c.; Nos. 18 and 20, 2.26½c. to 2.36½c.; Nos. 22 and 24, 2.36½c. to 2.46½c.; No. 26, 2.46½c. to 2.56½c.; No. 27, 2.56½c. to 2.66½c.; No. 28, 2.66½c. to 2.76½c.; No. 29, 2.76½c. to 2.86½c.; No. 30, 2.86½c. to 2.96½c. From store the jobbers have decreased their prices 10c. to 15c., as follows: No. 10. 2.15c. to 2.25c.; No. 12, 2.25c. to 2.35c.; No. 14, 2.35c. to 2.45c.; No. 16, 2.45c. to 2.55c.; No. 18, 2.55c. to 2.65c.; No. 20, 2.65c. to 2.75c; No 22, 2.75c. to 2.85c.; No. 24, 2.80c. to 2.90c.; No. 26, 2.90c. to 3c.; No. 27, 3c. to 3.10c.; No. 28, 3.10c. to 3.20c.; No. 29, 3.25c. to 3.35c.; No. 30, 3.35c. to 3.45c. Galvanized Sheets are offered at 75 and 10 to 75 and 10 and 5 from mill in carloads and 75 and 5 to 75 and 7½ from store in carloads or less

Billets.—Few transactions are noted, and the current price seems to be $24 per ton, Chicago, in carload lots or greater on either Open Hearth or Bessemer Billets, with a very general waiver of the $3 extra for Billets for forging purposes, except in special instances where analyses are stringent.

Cast Iron Pipe.—In line with the reduction on Pig Iron, Cast Pipe has also declined, 4-inch being sold at $28.50 to $29, and 6-inch, $27.50 to $28, in carload lots, for Water and $1 per ton higher for Gas Pipe. Business is quiet.

Merchant Steel.—The trade here has taken the change in discount on Shafting from 47 to 52 per cent. in car lots and 42 to 47 per cent. in less than car lots as a matter of course and has not increased its orders by a single pound as far as we are able to learn. In fact, buyers are disposed to persist in holding off in the hope of compelling a still further reduction. We quote as follows in carload lots, Chicago, for shipment from mill: Open Hearth Spring Steel to the general trade, 2.25c., to 2.50c.; Smooth Finished Machinery Steel, 1.76½c. to 1.86½c.; Smooth Finished Tire, 1.66½c. to 1.76½c.; Sleigh Shoe, 1.51½c. to 1.61½c.; Cutter Shoe unchanged at 2.41½c. to 2.51½c.; Crucible Tool Steel, 6½c. to 8c.; Special Tool Steel, 12c. to 14c.; Shafting at 52 per cent. in car lots and 47 per cent. in less than car lots; Toe Calk Steel, 2.01½c. to 2.11½c. Spring Steel to manufacturers of Carriage Springs has been reduced in price as predicted, but no reduction has been named to builders of Car Springs. A slow revival of business is felt in Merchant Steel entering into agricultural implements, though it is by no means in proportion to the reductions in price that were noted last week.

Merchant Pipe.—Business is falling off, as must be expected with the advent of cold weather, but official prices remain unchanged. We quote the following discounts in carload lots, random lengths, mill shipment, Chicago:

	Steel Pipe,		Guaranteed Wrought Iron.	
	Black. Per cent.	Galvd. Per cent.	Black. Per cent.	Galvd. Per cent.
⅛ to ⅜ inch	66.35	56.35	63.35	53.35
½ inch	68.35	58.35	65.35	55.35
⅝ to 6 inches	73.35	63.35	70.35	60.35
7 to 12 inches	67.35	57.35	64.35	54.35

Less than carloads, 12½ per cent. advance.

Boiler Tubes.—A Sunday quiet pervades this market, and what little buying there is is largely from store. Boiler manufacturers only buying Tubes for one Boiler at a time. The following discounts are current:

	Discounts, per cent.		
	Steel.	Iron.	Seamless steel.
1 to 1½ inches	40.85	37.35	53.35
1¾ to 2½ inches	53.85	36.35	40.35
2¾ to 5 inches	59.35	46.35	up to 4 in. 48.35
6 inches and larger	53.85	36.35	....

The store prices on Boiler Tubes in car lots or less remain unchanged, as follows:

	Steel.	Iron.	Seamless steel.
1 to 1½ inches	40	35	37½
1¾ to 2½ inches	50	32½	35
2¾ to 5 inches	57½	42½	45
6 inches and larger	50	32½	..

Rails and Track Supplies.—The price of Standard Sections is being held at $28, Chicago, in spite of the fact that Western mills have thousands of tons piled ready for immediate shipment. On the lighter sections the price quoted last week must be understood to be from maker's mill in the Pittsburgh territory, and not necessarily from maker's mill, Chicago. Twenty to 40 lb. Rails are quoted at about $30, Chicago, and 12 to 16 lb. Rails at about $32, though it is difficult to surmise what prices an inquiry for a very large quantity of Light Sections might bring to the surface. Nominal quotations on Track Supplies are as follows: Angle Bars, 1.90c. to 2c.; Spikes, 2c. to 2.10c.; Track Bolts, 3½ x 3¾ inches, 2.75c. to 2.85c., with 15c. advance for Hexagon Nuts.

Old Material.—While the market is weaker and prices lower, it is now possible to give quotations which, to a large degree, represent the general market. Offerings from the railroads are very heavy, and stocks of material from this source are piling up in excessive quantities. Only occasional sales are made, and these not of especial magnitude, the demand showing no improvement over what it has been for some weeks. The few orders placed may be said to be at or at least very near to quotations given below. We quote as follows per gross ton, f.o.b. cars, Chicago:

Old Iron Rails	$17.00 to $17.50
Old Steel Rails, mixed lengths	11.00 to 11.50
Old Steel Rails, long lengths	14.00 to 14.50
Heavy Relaying Rails	23.00 to 23.50
Old Car Wheels	15.00 to 16.00
Heavy Melting Steel Scrap	11.00 to 11.50
Mixed Steel	10.00 to 10.50

The following quotations are per net ton:

Iron Fish Plates	$12.50 to $13.00
Iron Car Axles	16.00 to 17.00
Steel Car Axles	13.50 to 14.00
No. 1 Railroad Wrought	11.00 to 11.50
No. 2 Railroad Wrought	10.00 to 10.50
Shafting	13.00 to 13.50
No. 1 Dealers' Forge	9.50 to 10.50
No. 1 Busheling and Wrought Pipe	9.00 to 9.25
Iron Axle Turnings	9.00 to 9.50
Soft Steel Axle Turnings	8.50 to 9.00
Machine Shop Turnings	7.50 to 8.00
Cast Borings	4.00 to 4.25
Mixed Borings, &c	4.00 to 4.25
No. 1 Boilers, cut	9.00 to 10.00
Heavy Cast Scrap	11.50 to 12.00
Stove Plate and Light Cast Scrap	9.00 to 9.50
Railroad Malleable	10.00 to 11.00
Agricultural Malleable	9.00 to 10.00

Metals.—Copper has declined on the strength of the resumption of operations in the Northwest, and Lead is off about 30c. per 100 lbs. Tin is firm and Spelter steady. We quote as follows: Casting Copper, 13c. to 13¼c.; Lake, 13¼c. to 13½c., in carload lots, Chicago. Lead in 50-ton lots, 4.05c.; car lots, 4.10c. to 4.15c.; less than car lots, 4.15c. to 4.40c. Spelter, car lots, 5.25c.; less than car lots, 5.75c. to 6c. Pig Tin, 26c., car lots; 26½c. in less than car lots. Old Metals are firm, with the exception of Zinc, which is weaker. Quotations are as follows: Heavy Cut Copper, 11¼c.; Copper Bottoms, 10¼c.; Red Brass, 10c.; Lead, 3.85c., and Zinc, 4½c., spot.

Coke.—Frick Coke remains at $5.30 in this market, with other brands competing for business at from $5 up for 72-hour Foundry grade, carload lots, Chicago. Pocahontas sells at from $5 to $5.25, Connellsville at from $5.25 to $5.50, New River at from $5.15 to $5.40, and Conellsville Furnace at from $4.40 to $4.65. A noteworthy feature in the Chicago market is the strike which has tied up the ovens of the Colorado Fuel & Iron Company and has compelled Western smelters and melters to come to Chicago markets for their Coke. One firm state that they have already taken orders for 15,000 tons, mostly Pocahontas, for far Western shipment, and has been offered 10,000 additional tons if satisfactory shipments can be guaranteed. In order to move Eastern Cokes to the Rocky Mountain country it is necessary to send Western cars to the ovens for transshipment, as Eastern roads will not permit their cars to go to the far West.

The Alabama Steel & Wire Company are about to enter the Pig Iron markets with a product of 300 tons per day of Basic and Foundry Pig. They expect to blow in their furnace at Gadsden early in December. A. M. Crane of Pittsburgh has been appointed sales agent for the Pittsburgh and Chicago territories, and Mr. Crane has placed the Chicago office in the hands of C. E. Louis.

Philadelphia.

FORREST BUILDING, November 17, 1903.

Business is not at all active, but it holds its own fairly well, and that is perhaps all that ought to be expected during the remainder of the year. The monthly statistical report of the Pig Iron situation, which was published last week, shows a severe cutting down in the output, and, although it is offset by an apparent increase in stocks, it is believed that consumers have reduced their holdings to an extent which more than compensates for the increase on furnace banks. Good Foundry Irons are really scarce, but Mill Irons and off grades are in good supply, with comparatively little demand, so that prices cover an unusually wide range, with special low prices in Southern brands and in low grade Mill Irons. There is a disposition to take somewhat hopeful views as regards the ultimate outcome, and they may be well founded, but it is difficult to regard the immediate outlook with much confidence. The demand for Pig Iron aggregates so much below what it has been during the past three or four years that there must be a permanent curtailment in output if stocks are to be kept within reasonable limits. The demand for rolling mill products is also insignificant compared with what could be turned out, so that on all sides there is a dearth of business and no tangible evidence of anything likely to bring improvement. In reply to this it is said that the country is all right, that the West and South are prosperous (which is undoubtedly true), and that it is therefore most unlikely that the Iron and Steel trades can be depressed for any length of time. But the misfortune is that they are already depressed, and there is very little comfort in being told that they are going to be better unless some distinct evidence can be presented to support statements of that kind. There is some ground for hopes of improvement, but the best that can be said as regards business in this territory is that it is ready to move in harmony with other districts; but in the meantime the demand is the smallest there has been for months past, and there is not a single feature that can be taken as indicating improvement in the near future. The recent reductions in Billets and Steel Bars had been fully discounted, so that the new figures have no influence in increasing the demand. Better conditions are hoped for and there is no good reason why they should not be forthcoming, but for the present they are not in sight, and that statement is about as fair as can be given.

Pig Iron.—It is quite impossible to quote the market satisfactorily, as every brand has a price of its own. Conditions vary so widely that it would be difficult to make one figure a close standard for all brands. Some have more or less of a surplus, others are close sold up, some are inclined to discount the future, while others, with more confidence in values, quote pretty full figures. Hence from $15, delivered, to $15.75 is quoted for Northern No. 2 X Foundry Irons. Buyers who have a preference for a special brand would rather pay the outside figure for an Iron they like than take another that they know nothing about, even if the price was much lower. The general trend, however, is not upward, although it is only in spots that it can be called distinctly weak, and that is more noticeable in low grades and Southern Irons than in Pennsylvania Irons, Foundry grades particularly. Buyers are not placing large orders, however, price being no inducement except for just such quantities as they happen to need. Unfortunately, their needs are not very great at the present time, and, so far as can be seen, they are not likely to be more important during 1903, although it is hoped that 1904 will make a better showing. The immediate conditions are such that buyers are in most cases willing to take their chances. When they get some new business on their books they will place orders in proportion, but until that time they are not likely to increase their commitments, even if prices go lower. The range, as we have already said, is a very wide one, and would be about as follows for Philadelphia and nearby points:

No. 1 X Foundry	$16.00 to $16.50
No. 2 X Foundry	15.00 to 15.75
No. 2 Plain	14.50 to 14.75
Southern No 2, rail shipment	13.50 to 14.00
Southern No. 2, on dock	13.00 to 13.25
Standard Gray Forge	13.75 to 14.25
Ordinary Gray Forge	13.25 to 13.50
Basic	14.00 to 14.25

Steel.—The reduced prices have brought very little new business so far, as they had been amply discounted before the

reduction. Prices do not stand in the way of business, however, The demand is not there in any volume, and until Steel is actually required prices make very little difference. The range for Ordinary Steel is $24.25 to $25 (large lots at the inside figures), with the usual addition for extras.

Plates.—The volume of business is not large and it is impossible for any of the mills to get out much of a tonnage, although, of course, there are a good many small orders and some mills are doing better than others. The recent reaffirmation of prices makes Philadelphia deliveries as follows:

	Carloads. Per pound. Cents.	Part carloads. Per pound. Cents.
Tank Steel, ¼ inch and heavier	1.75	1.80
Tank Steel, 3-16 inch	1.85	1.90
Tank Steel, No. 8	1.90	1.95
Tank Steel, No. 9 and No. 10	2.00	2.05
Flange or Boiler Steel	1.85	1.90
Marine and Commercial Fire Box Steel	1.95	2.00
Still Bottom Steel	2.05	2.10
Locomotive Fire Box Steel	2.25	2.30
Plates over 100 to 110 inches wide	$0.05 per lb. extra.	
Plates over 110 to 115 inches wide	.10 " "	
Plates over 115 to 120 inches wide	.15 " "	
Plates over 120 to 125 inches wide	.25 " "	
Plates over 125 to 130 inches wide	.50 " "	
Plates over 130 inches wide	1.00 " "	
Sketches	.10 " "	
Complete circles	.20 " "	

Structural Material.—The demand is so small that, in addition to the closing of the mills at Pencoyd, another leading local mill has shut down most of its departments temporarily. There is no doubt that business is in an extremely depressed condition, and prospects for improvement are anything but encouraging at the moment. Prices, however, are unchanged—viz., 1.73½c. to 1.85c. for Beams, Channels and Angles, according to specifications.

Bars.—The demand has fallen off to almost nothing and mills have a hard time to keep in active operation at anything like remunerative prices. The reduced cost of Scrap and of labor gives some relief, but the worst feature is that the volume of business is not to be had and further reductions in cost are expected in the near future. Prices for Refined Bars in carload lots are variously quoted at 1.40c. to 1.45c., delivered, but some Iron can be had at less than 1.40c. and Steel Bars at 1.45c.

Sheets.—The reduced prices seem to have no influence on the demand, which is of small proportions. Stocks in second hands appear to be very light, however, as every purchase is for immediate shipment.

Old Material.—The demand for Steel Scrap appears to have almost entirely ceased, bids for large lots being practically unobtainable. Other Old Material is dull and irregular, and mostly at reduced prices. Bids and offers for deliveries in buyers' yards are about as follows:

Old Steel Rails	$12.00 to $12.50
Heavy Steel Scrap	12.00 to 12.50
Low Phosphorus Scrap	20.00 to 21.00
Old Steel Axles	14.00 to 15.00
Old Iron Rails	16.00 to 17.00
Old Iron Axles	17.00 to 18.00
Old Car Wheels	15.00 to 16.00
Choice Scrap, R. R. No. 1 Wrought	15.00 to 16.00
Country Scrap	14.00 to 14.50
Machinery Scrap	13.00 to 14.00
No. 2 Light Scrap	11.50 to 12.00
No. 2 Light (Ordinary)	9.50 to 10.50
Wrought Turnings	9.50 to 10.00
Wrought Turnings, Choice Heavy	10.25 to 11.00
Cast Borings	6.75 to 7.25
Stove Plate	10.00 to 10.50
Wrought Iron Pipe	12.00 to 12.50

Bancroft & Co., Iron founders, have removed their city office to 306 Drexel Building.

Cincinnati.

FIFTH AND MAIN STS., November 18, 1903.—(*By Telegraph.*)

In spite of the fact that buyers have not let up in their efforts to bear the Pig Iron market, there has been a much more active movement. Some large sales are noted, one amounting to 1200 tons. Nearly all selling is being done by Southern interests. Some of this Iron, represented in the smaller transactions, has been sold on the basis $9.50, Birmingham, for No. 2 Foundry, but in the main this figure was cut 25c. to 50c. in larger transactions. A considerable number of sellers are refusing to consider any lower basis than $9.50, even for prompt shipment. Other sellers are openly offering spot shipments on the basis of $9. While furnaces, as a rule, do not appear to want forward deliveries on the present basis, it is well understood that a number of the sales are to cover delivery through the next four months. Some buyers are claiming to have bought on the basis of $8.75, same basis as above, and other buyers claim to have been offered that figure. These claims do not, however, get much credence, as they are generally regarded as simply further attempts to push the prices lower. The situation is uncertain, and the market an irregular one. Freight rates from Hanging Rock district to Cincinnati, $1.15, and from Birmingham, $2.75. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1	$12.25 to $13.25
Southern Coke, No. 2	11.75 to 12.75
Southern Coke, No. 3	11.25 to 12.25
Southern Coke, No. 4	10.75 to 11.75
Southern Coke, No. 1 Soft	12.25 to 13.25
Southern Coke, No. 2 Soft	11.75 to 12.75
Southern Coke, Gray Forge	10.50 to 11.00
Southern Coke, Mottled	10.50 to 11.00
Ohio Silvery, No. 1	18.15 to 18.65
Lake Superior Coke, No. 1	15.65 to 16.15
Lake Superior Coke, No. 2	15.15 to 15.65
Lake Superior Coke, No. 3	14.65 to 15.15
Car Wheel and Malleable Irons.	
Standard Southern Car Wheel	$20.75 to $21.25
Lake Superior Car Wheel and Malleable	20.00 to 20.50

Cleveland.

CLEVELAND, OHIO, November 17, 1903.

Iron Ore.—The season for the shipment of Iron Ore down the lakes is about over. The United States Steel Corporation will close their lake movements before the present week is out, and the other shippers will begin to wind up their shipments about the same time. It is hardly expected that the Ore will be moving away from the head of the lakes more than a week longer. The receipts at the lower lake docks will end entirely by December 1, which is much earlier than is usual with the lake trade. Lack of demand for the material is the cause, as the weather in the Northwest has not been such as would have prevented a continuance of the movement for some time, and lake insurance policies on vessels and their cargoes are applicable on boats leaving the port of shipment on December 5. During the past week the wild cargoes have been very scarce, and such rates as have been quoted have been purely nominal. The movement, such as it has been, has proved to be entirely in contract boats. The Lake Erie docks are filled with Ore awaiting shipment to the furnace stock piles. The demand from that territory has been very light, due to the curtailment of production on the part of the Valley stacks.

Pig Iron.—The Pig Iron conditions in this territory show a decided tendency to improve. Foundrymen are acting upon the belief that bottom prices have been reached by the furnaces and are preparing to cover their needs. The matter of distinguishing between the prices and Irons, offered by the different territories which produce the material, is about the only cause for delay, together with some little uncertainty as to the exact amount which will be needed during the first half of the year. The prices of Southern Iron have gravitated to a little lower level during the week, as quoted in this market, and some consumers, believing that as near cost price has been reached as the producer is likely to go, have prepared to cover all immediate needs with contracts. As a result there has been a considerable contract movement in this territory, which entails deliveries until July 1 next year, although it is mostly confined to the first quarter of 1904. Some few of the furnaces in the Birmingham district have refused to make any long time contracts on the present basis of prices. The prices have held at between $9.50 and $10, Birmingham, for No. 2 Foundry. The Northern furnaces have been holding to $14.50, in the Valley, for No. 2. The Bessemer and Basic trades are very dull, and the material is hardly quotable at any price which would be significant. There is a movement to curtail the production still further. It will hardly be a formal action, such as the last, but the various furnaces will adjust that matter without the necessity of joint action. It is understood now that many of the furnaces which have been out thus far in November, but which otherwise would have blown in about December 1, will remain idle during a greater part of that month. It is known that some of the furnaces which will blow out December 1 will not resume operations until about February 1, unless there is a marked revival of trade. Many of them have piled enough Iron to carry on deliveries on contracts. The Coke situation is easier and the price has sagged a little, good 72-hour Connellsville Coke being quoted $2.65 at the oven.

Finished Iron and Steel.—The recent reduction in the price of Billets has stimulated considerable buying in this territory, although much of the material, which is now finding its way into the association mills, has been diverted from the independent concerns, which are either too well filled to take any further material or are not willing to meet the association price. The price of Bar Iron is again in question, as it has been intimated that the smaller concerns have again made a reduction. This, however, is without authority, as the established price in this territory seems to be 1.30c., Youngstown. The mills were pretty well filled up during the buying movement, which preceded the lowering of the prices on Bar Steel. The buying of Steel Bars has been improved somewhat. No big contracts have been placed, even though many of the interests have not yet covered. The spot buying, however, is a little heavier, and the specification against old contracts, on which the price has been adjusted to the new scale, is increasingly heavy. The market has a much better tone at 1.30c., Pittsburgh, for Bessemer, and

1.40c., Pittsburgh, for Open Hearth. The Sheet trade came to a halt the latter part of last week. The expectation which has been hanging over the market that the prices of Sheets would be reduced seemed about to be realized, and the mills and consumers waited for the development. The announcement from New York on Monday that the reduction had been agreed to was therefore nothing more than was expected. There is a good, liberal tonnage which awaits this reduction in prices, and it is expected that a buying movement will result, the market being a little different in that respect from what it has been with the other trades. The Plate and Structural trades have hardly changed, although it is evident in this territory that considerable confidence is placed in the report sent out from New York that the prices of those staples are not to be cut, in keeping with the other reductions. The lack of trading now is due more to business and labor conditions than to any apprehension that consumers would be buying on a falling market. The prices hold steady on spot business at 1.60c., Pittsburgh, for both Plates and Shapes. There are a few inquiries for Rails, but the tonnage has not yet been covered.

Old Material.—The market has been very dull and listless, with no sales of any importance, and with the market steadily sagging to the lowest level it has reached in a number of years. The curtailment of production of the finished material has, of course, a very decided effect upon the Scrap trade, and the accumulations of that material acts together with the lack of demand to bear down the prices. The market is represented by the following prices readjusted to meet the present conditions, all gross tons: Old Steel Rails, $15; Old Iron Rails, $17 to $18; Old Car Wheels, $15 to $16; Railroad Malleable, $13 to $14; Cast Borings, $5.50 to $6. All net tons: No. 1 Railroad Wrought, $12 to $13; No. 1 Busheling, $10 to $11; Wrought Turnings, $7 to $8; Iron Car Axles, $22; No. 1 Cast Scrap, $12 to $13; Stove Plate, $10.50 to $11.

Birmingham.

BIRMINGHAM, ALA., November 16, 1903.

There are many rumors floating around as to the action of certain interests in the trade, which, when run down, turn out to be "phantasms of the brain." From the motley horde of rumors in circulation, but few facts of interest can be secured. There can be no question as to one thing, and that is the volume of business has very materially increased. Not only have the small and medium buyers been in constant evidence, but they have been reinforced by larger buyers who have taken good sized lots, which have, in some cases, run as to delivery into next year. But the major part of the business has been restricted to delivery in this year, and the greater part of this has had tagged to it the admonition to ship promptly. One lot of 15,000 tons was placed (the grades being Nos. 3 and 4 Foundry), delivery covering four months. Rumor had it that this lot was sold on the basis of $9 for No. 2 Foundry; but the sellers assured your correspondent that the price was nearer $9.75. That was early in the week. Later in the week another round lot was placed, said to be 12,000 tons, on a basis of about $9.25. This is the lowest price that one can say with positiveness was made. All kinds of lots were sold during the week; and, you can add, at all kinds of prices, up to $10.25 for No. 2 Foundry. There was a rumor that $9 was looked for some Iron, but no one will father the sale, and there is no way as yet to speak of the transaction authoritatively. It is an accepted fact that we are fully $1, and, in some cases, even more below the prices of our Northern competitors; and while we are not running to full capacity, we have not slowed down to the extent they have. Besides that, the concensus of furnace opinion is that prices will soon mend. Why then are such reductions made in prices? The answer is, the furnace interests are running from an accumulation, and as soon as full assurance is felt that the tide has turned prices will be marked up again.

As evidence that the volume of trade has materially increased, it can be stated that the sales of one interest on one day exceeded 14,000 tons, and that their aggregate sales since the opening of the month has exceeded twice their output. While the other interests will probably not reach this amount, it is still safe to say that their total will exceed their output. In a few cases transactions have covered in delivery the whole of next year. But the particulars of these sales are rigidly withheld from publicity, and efforts to ascertain the prices are without result. But your correspondent knows of instances where $11.50 has been named by sellers to buyers, who persistently insisted upon a price being named. But he has heard of no sales being made at these quotations. The higher figure indicates the expectations of sellers concerning the future of the market. Rumor has it that shipments are heavy. But the truth is they are limited, because of the difficulty of obtaining cars. They would be heavy if cars were obtainable. Everything that can be loaded with Iron is being utilized in the endeavor to move it. If there was prompt service in this respect, our stocks would begin to show a material decrease. The majority of the orders were for the Foundry grades; though all the grades have been in demand. One can truthfully say that the orders have been increasing in volume, and where they were confined to one and two car lots, the limit has been raised to 100 and 200 tons.

No reports have been made of new export business, though offers and counter offers are being made every day, with so little difference between buyers and sellers that one wonders why no trades are concluded. The aggregate of export business concluded so far will not exceed 2000 tons, and the orders have been shipped.

It may challenge contradiction, but your correspondent makes the assertion, with every confidence in its correctness, that at current market some of our furnaces are booking a loss of over $2 per ton; and, that with very limited exceptions, the cost sheets of Iron making will now exceed selling price. To this fact, add the fact that supplies in consumers' hands are as low as their necessities will permit; and, from the furnace point of view, you have the keys to govern action. One thing seems pretty clear to a conservative observer, and that is, there must be a rally in prices or a shut down of some furnaces. This latter would have occurred before this, but for the advent of fortuitous circumstances.

The Pipe works report a beter condition of affairs than was shown the preceding week. Some very desirable business has been secured, and more of very material volume is in sight. A very fair line has been taken by the West Indies, as also by Mexico; and some inducing business for home interests is heaving in sight. A fair line of contracts for delivery the coming year has been booked. Prices have been revised, and are now as follows: 4-inch Pipe, $25; 6-inch Pipe, $24; 8, 10 and 12 inch, $23.50; 14, 18 and 20 inch, $22.50; 24 and 30 inch, $22. There may be a little elasticity in some of these prices on some sizes, but as a rule they are a safe guide.

The Steel mill has temporarily shut down, as has also the Birmingham Rolling Mill on account of slow business. This lays off for a while a regiment of men. The Steel mill will resume operations on or before January 1, and the rolling mill whenever business demands.

Coal and Coke continue to be in good demand, with prices showing no change since last report. The output has to be limited to the tonnage that can be furnished by the railroads. For the first seven months of this year the Southern road handled in this district over 200,000 tons more Coal than for the corresponding time last year, showing the rate of the increasing business. Other roads make the same favorable showing.

The report of the Car Service Association shows that they handled during October 67,192 cars, a gain of more than 10,000 cars over the corresponding time last year.

The Sayre Mining & Mfg. Company filed their articles of incorporation last week. They are capitalized at $200,000, and are empowered to mine Coal and Iron Ore, to quarry rock and stone, make Coke and all bi-products of Coal, and to operate one or more furnaces, rolling mills, &c. These letters have frequently spoken of this corporation. They have spent several months in perfecting their organization. R. H. Sayre of South Bethlehem, Pa., is president, and John H. Adams, assistant general manager of the Republic Company, is vice-president.

A new mineral paint company have commenced operations of making paint by grinding the hard red Ore. Their capacity will be 10 to 12 tons for each ten hours. There were a few other incorporations of minor consequence. Preliminary arrangements are being made for the opening of some more Coal properties, but the operators object for personal reasons to any specific mention as yet.

St. Louis.

CHEMICAL BUILDING, November 18, 1903.—(*By Telegraph.*)

Pig Iron.—The current demand is unimportant, and a casual look over the situation shows that the actual buying, which is almost entirely in small lots of Foundry Iron, is specified for quick rather than extended shipment. The recent adjustment of prices for finished materials in other departments of the Iron and Steel market, it is thought, may now exert an influence to come into the market for Pig Iron supplies, but the general trend of affairs do not hold out much encouragement for any substantial improvement for the immediate future. No. 2 Foundry Iron on a Birmingham basis of $9.50 seems to be the most general quotation, but it is rumored that this price has been shaded. We quote, f.o.b. St. Louis, as follows:

Southern, No. 1 Foundry	$13.25 to $13.75
Southern, No. 2 Foundry	12.75 to 13.25
Southern, No. 3 Foundry	12.25 to 12.75
Southern, No. 4 Foundry	11.75 to 12.25
No. 1 Soft	13.25 to 13.75
No. 2 Soft	12.75 to 13.25
Gray Forge	11.25 to 11.75
Southern Car Wheel	21.25 to 21.75

Bars.—The recent adjustment of prices on lower basis has not contributed largely to the demand for supplies in

this department. Bars, both Iron and Steel, are selling in lots from jobbers' warehouses on a basis of 1.85c.

Angles and Channels.—The jobbing trade conditions are rather quiet in this department, and actual sales and inquiry for Small Angles and Channels has been of very moderate proportion this past week. In lots from store 2.15c. is the price basis.

Rails and Track Supplies.—A moderate degree of trade has ruled in the market for this class of supplies. In this, as in other departments of the Iron market, buyers are waiting on larger contracts, hoping to secure concessions from present prices. We quote as follows: Angle Bars, 1.95c. to 2.04c.; Bolts, with Square Nuts, 2.80c. to 2.90c.; with Hexagon Nuts, 2.95c. to 3.05c.; Spikes, 2.05c. to 2.15c.

Pig Lead.—Trading in the Lead market has shown but slight activity the past week. Prices are but little changed, with quotations nominally 4.20c. for Missouri brands and 4.22½c. for Desilverized.

Spelter.—The pressure to sell has been somewhat greater the past week, and buyers have been benefited by the establishing of a lower range of prices, nominally 5c.

Pittsburgh.

PARK BUILDING, November 18, 1903.—(*By Telegraph.*)

Pig Iron.—Official reports received by the Pig Iron Committee show that fully 1,500,000 tons of Pig Iron less will be made in November, December and January than in the last three months. It is certain that had it not been for this shut down movement there would have been a great deal of Iron pressing the market for sale, and prices would probably have been lower than they are now. There is not much doing in Pig Iron, consumers still buying only for actual needs. Bessemer Iron is held at $14.50, Valley furnace, but on a firm offer this might be shaded 15c. to 25c. a ton. Northern No. 2 Foundry Iron is selling at $14.25 to $14.50, Pittsburgh. Southern No. 2 is quoted at $9.25 to $9.50, Birmingham, equal to $13.60 to $13.85, Pittsburgh. There have been sales of several hundred tons at these prices. Northern Forge Iron is very dull, at $13 to $13.35, Pittsburgh. Southern Forge is being offered at $12.25 to $12.50, Pittsburgh.

Steel.—The Steel market is very quiet, and only small lots are changing hands. The official price of Bessemer and Open Hearth Billets is $23, Pittsburgh, with $1 a ton advance for Sheet Bars in long lengths. Bessemer Billets up to 0.25 Carbon and Open Hearth up to 0.60 Carbon take above price. It is said that some of the outside Open Hearth plants are shading the pool price on Steel about $1 a ton.

(By Mail.)

It seems that for a time at least there will be no further reductions officially made in prices of Iron and Steel products. So far these reductions have been $4 on Bessemer Billets and $5 on Open Hearth, $6 on Steel Bars and about 10 per cent. in Shafting. The official price of Tin Plate has been reduced 20c. a box or $4 a net ton, and the American Sheet Steel Company have made an adjustment in prices of Sheets to conform to lower prices of Billets and Sheet Bars. Plates and Structural Steel remain unchanged, and will probably continue on the present basis for some little time. There has been no change in price of Plates or Structural Steel for about two years. On other lines of product, such as Wire Nails and Wire, Skelp and Pipe, concessions in prices are being made on anything like desirable orders. Now that adjustments in prices of Iron and Steel products have been fixed for the time being, the question of labor will be taken up next and material reductions in high priced labor will be made on January 1. It is understood that the United States Steel Corporation have already taken the initiative, and have made reduction in salaries of officials ranging from 10 per cent. on the lowest priced men up to 35 per cent. on the highest salaried officials. The American Tin Plate Company and the American Sheet Steel Company have made a material reduction in wages of tonnage men, but common labor is not to be disturbed. The Carnegie Steel Company on January 1 will make reductions in wages of tonnage men at Homestead, Duquesne and Bessemer, and also at their other plants in the Valleys. In fact, labor of all kinds, with the exception of day labor, is to be materially reduced at the first of the year. For some time negotiations have been going on between leading railroads and the large Steel interests, looking to the fixing of lower freight rates on Iron and Steel for export. The present rate of Billets from Pittsburgh to Philadelphia is $2.40, and to New York $2.90, but it is expected that a rate of about $1.50 from Pittsburgh to Philadelphia will be made on Billets and Bars for export, and about $1.75 to New York. These new rates are now in process of adjustment, and will likely be made effective not later than January 1, and perhaps by December 15. The general condition of the Iron and Steel trades shows practically no change, and tonnage does not show any improvement. The trade continues to buy only in small lots for actual needs, and this applies on everything from Pig Iron all down the line of Finished Material. There is really no incentive for consumers to anticipate their requirements, and they will not do so until absolutely assured that bottom of the market has been reached. Bessemer Pig Iron is quoted at $14.35 to $14.50, Valley, in small lots, but it is claimed that furnaces in the Bessemer Furnace Association are holding their Iron at $14.75 to $15, at furnace. The fixed price of $23 for Bessemer and Open Hearth Billets is being held by the mills in the pool, but it is stated that several outside Open Hearth plants are offering Billets at 50c. to $1 a ton under the pool price. They are able to do this by reason of the lower prices of Bessemer Iron and Heavy Melting Stock, the latter having sold recently at $12.50, delivered, Pittsburgh. As yet the Coke producers have not been able to get together on their plan of restricting output of Coke and controlling prices, but a meeting of the committee recently appointed is to be held this week. The Duquesne Steel Works, Homestead Steel Works and the Republic plant at Youngstown are now in operation, though not to full capacity. The Sharon, South Sharon and New Castle works of the Carnegie Steel Company remain idle. The heavy reduction in output of Pig Iron, which has been made by shutting down so many furnaces, ought to have a beneficial effect on the market, and no doubt will.

Plates.—At the meeting of the Plate Association, held in New York last week, prices were reaffirmed on the basis of 1.60c., Pittsburgh, for Tank, ¼-inch and heavier. While the trade generally anticipated a reduction in price of Plates, yet it should be borne in mind that when Pig Iron was selling as high as $23 to $24, and Billets at $31 to $32, the Plate mills refused to advance the price, but maintained it on the basis of 1.60c. It is true that some of the mills that were able to ship out Plates promptly charged higher than this price, but the bulk of the tonnage was entered at 1.60c. It is claimed that with Billets at $23 the price of 1.60c. on Plates is not exorbitant. Tonnage continues light, buyers placing orders only for small lots and for actual needs. Prices as reaffirmed last week are as follows: Tank Plate, ¼-inch thick and up to 100 inches in width, 1.60c., at mill, Pittsburgh; Flange and Boiler Steel, 1.70c.; Marine, Ordinary Fire Box, American Boiler Manufacturers' Association specifications, 1.80c.; Still Bottoms Steel, 1.90c.; Locomotive Fire Box, not less than 2.10c., and it ranges in price up to 3c. Plates more than 100 inches in width, 5c. extra per 100 lbs. Plate 3-16 inch in thickness, $2 extra; gauges Nos. 7 and 8, $3 extra; No. 9, $5 extra. These quotations are based on carload lots, with 5c. extra for less than carload lots; terms net cash in 30 days.

Steel Rails.—A fair amount of tonnage for export is in the market, but there is very little doing in domestic orders. It is understood that while no change has been made in the price of Rails, which remain at $28 at mill for Standard Sections, certain negotiations now under way may possibly result in Rails being lowered in price. The Canadian Pacific order for 30,000 tons has not yet been placed.

Iron and Steel Bars.—Several of the mills report a slightly better demand for Steel Bars since the recent cut in prices was made, but as a rule buyers continue to place orders for actual requirements, and buying is of the hand to mouth character which has prevailed for so long. This is true of both Iron and Steel Bars and would create the impression that the trade is not altogether satisfied that prices of Bars have touched bottom. We quote Iron Bars at 1.30c. Youngstown, or 1.34¾c., Pittsburgh. We quote Steel Bars at 1.30c., Pittsburgh, in carloads and larger lots. For quantities less than 2000 lbs. and not less than 1000 lbs., the price is 1.40c., and for less than 1000 lbs. the price is 1.50c.

Muck Bar.—The market is practically lifeless, and prices are merely nominal. Domestic grades of Muck Bar are quoted at $24, Pittsburgh, but in the absence of any business it is difficult to say just what would be done on a firm offer.

Rods.—There is practically no inquiry. We quote Bessemer and Open Hearth Rods at $31, and Chain Rods, made from special stock, at $33, Pittsburgh.

Ferromanganese.—The market on Ferro is somewhat demoralized, owing to the fact that several large consumers are offering Ferro for resale and at lower than established prices. These concerns made contracts some months ago, when their Steel works were running full time, and now that this Ferro is coming in they are unable to use it all and are offering the surplus in the open market. Such lots of Ferro have sold as low as $47, while the official price is understood to be $49, delivered.

Sheets.—Last week the leading Sheet interest made a readjustment in prices of Sheets on a lower basis, to conform to the lower prices of Billets and Sheet Bars. Demand for Sheets is very fair, and the leading interest are operating some of their plants to full capacity, while others are idle. It is the policy to operate a number of mills full and allow others to remain idle, in preference to operating a larger number of plants only partly full. We quote No. 27 Black Sheets, box annealed, one pass through cold rolls, in carloads and larger lots, at 2.35c. to 2.40c. and No. 28 at 2.45c. to 2.50c. Prices on Galvanized Sheets are somewhat

lower, and we quote at 75, 10 and 10 per cent. off. In net prices these would be on the basis of about 3.05c. for No. 26, 3.25c. for No. 27 and 3.45c. for No. 28, for carloads and larger lots. Jobbers charge the usual advance over these prices for small lots from store.

Structural Steel.—It is understood the Blackwell's Island Bridge, which involves about 40,000 tons, has been placed with the Pennsylvania Steel Company, at Steelton, Pa. No large contracts have recently been placed in this district, and it seems that all large work has been hung up for the time being. The railroads, which are usually liberal buyers, are now placing orders for small tonnage. The present price of 1.60c. for Beams and Channels is regarded as conservative, and there is no complaint on this score. Were financial matters and labor troubles in better shape there is no doubt but the tonnage in Structural Steel would be very heavy. The Beam mills reaffirmed prices last week, and we quote as follows: Beams and Channels, up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 up to 6 x 6, 1.60c.; Zees, 1.60c.; Tees, 1.60c.; Steel Bars, 1.60c., half extras, at mill; Universal and Sheared Plates, 1.60c.

Merchant Steel.—As indicated in this report last week, the Shafting Association has reduced prices of Shafting to 52 per cent. off in carloads and 47 per cent. off in less than carloads, delivered, in base territory. Demand for some time has been rather light. There has also been a material decline of prices of Tire Steel, and also on other grades and tonnage being placed for small lots only. We quote Tire Steel at 1.50c.; Toe Calk, 1.75c. to 1.85c.; Open Hearth Spring, 2c. to 2.10c., and Sleigh Shoe Steel, 1.90c. to 2c., with usual differential for small lots; Tool Steel is quoted at 6c. to 8c. for ordinary grades.

Spelter.—Prices of Spelter have further declined, and we quote Prime Western grades at 5.25c., f.o.b. Pittsburgh, for prompt shipment. For future delivery a lower price would be made.

Skelp.—There is practically nothing doing in the Skelp market and prices are weak. We quote Grooved Iron and Steel Skelp at 1.35c., and Sheared at 1.40c. to 1.50c., Pittsburgh.

Merchant Pipe.—In sympathy with other lines prices of Pipe are not as firm as they have been, but more liberal concessions are being made for the smaller sizes. The Pipe trade has really been better in point of demand than any other department of the Steel business, and on the larger sizes the mills are well filled up for balance of the year. On Steel Pipe prices are being shaded to the extent of 5 per cent. or more, and on Iron Pipe about 5 per cent. Quotations to consumers in carloads are as follows:

	Steel.		Wrought Iron.	
	Black.	Galv.	Black.	Galv.
	Per cent.	Per cent.	Per cent.	Per cent.
⅛, ¼ and ⅜ inch	68	58	65	55
½ inch	70	60	67	57
¾ to 6 inches	75	65	72	62
7 to 12 inches	69	59	66	56

Merchant Boiler Tubes.

	Steel.	Iron.
1 to 1½ inches	42½	39
1¼ to 2½ inches	55½	38
2¾ to 5 inches	61	48
6 to 13 inches	55½	38

Coke.—A meeting of the committee recently appointed by the Coke producers to take the matter up of devising some scheme to place the Coke trade on a better basis is to hold a meeting in this city this week. The project for a central sales agency does not meet with much favor, and it will hardly go through. The Coke trade is in a very unsatisfactory condition and last week output dropped to 149,000 tons, which is the smallest production in any one week for three years or more. This week it will be smaller, owing to the blowing out of a number of furnaces by W. J. Rainey and other producers. The price of Connellsville Furnace Coke is about $1.75 a ton, at oven, but in exceptional cases it has sold at a lower figure. Strictly Connellsville 72-hour Foundry Coke is held at $2.50 to $2.65 a ton, at oven. Main Line Furnace Coke is selling as low as $1.40 to $1.50 a ton and Foundry from $2 to $2.25 a ton, at oven.

Iron and Steel Scrap.—The market continues exceedingly quiet, and prices on all kinds of Scrap have declined very materially in the past few weeks. A number of consumers who made contracts for Scrap some time ago, when prices were higher than they are now, are not taking it in and this material is being offered for resale in the open market, which is helping to decrease prices. Heavy Melting Stock has sold at $12.50 to $13, in gross tons; No. 1 Railroad Wrought Scrap, $11 to $11.50, in net tons; Old Steel Rails for rerolling are $15 to $16, in gross tons.

Nothing definite has yet been decided in the plans for placing the management of the American Sheet Steel Company and the American Tin Plate Company into the hands of W. T. Graham of the latter company and moving the headquarters to Pittsburgh.

The New York Machinery Market.

NEW YORK, November 18, 1903.

All things considered, there is a slightly better feeling prevailing in the trade. Optimistic expressions, though not very strong, are more numerous than at any time for a number of weeks past. During the last week there has been an increase in the number of orders placed, but they were all rather small. Correspondence, we are informed, wore a better aspect, denoting to many in the trade that some improvement may confidently be looked for before a very great while. No new developments are to be noted in connection with any of the large transactians that have been hanging over the market. Purchasers have expected to see a wide declining of prices, but as a rule sellers are maintaining values. This applies more particularly to the machine tool branch of the trade, where prices are rigidly maintained.

Considerably more attention is being given the export field, and good results, it is said, are being obtained. There is a better demand for machine tools from Germany, where it appears, the small engine and motor trade has improved somewhat of late. From other countries in Continental Europe, where the large German machinery merchants maintain branches, business is also emanating in increased volume. American machine tool builders are disposed to increase their efforts in foreign fields, and while we have no definite information as to the cutting of prices with the object of stimulating exportation, it is well known that the German machinery merchants have sought just this thing for some time, and it may be significant to note that they are now sending more orders to this country than they did when our domestic trade was better.

The sale of the fine factory equipment of the Dow Composing Machine Company of New York last week caused considerable surprise in the trade. The concern were looked upon as very prosperous and promising, and have recently been good customers in the machinery market. They operated a plant at 441 Pearl street, and maintained offices in the Park Row Building. Dissensions among the officers of the company are said to have caused the complete disruption of the concern, the sale of the equipment resulting. The major portion of the machinery was purchased by the Niles-Bement-Pond Company, and the balance was secured by the Brown & Sharpe Mfg. Company. This plant is being dismantled. It is thought in the trade that the business of the concern may be taken up by the American Standard Type Company, whose offices are in the Park Row Building.

As candidates are now being considered by President Roosevelt for the Panama Canal Commission, a good deal of interest is being directed toward this project at present by the engineering fraternity. Representative Wiley of New Jersey and James Mapes Dodge, president of the American Society of Mechanical Engineers, called on the President yesterday, urging the selection of John Birkinbine, the prominent Philadelphia engineer. A delegation from Illinois are urging the indorsement of Isadore Randolph, who was engineer of the Chicago Drainage Canal.

As the building of the Panama Canal will consume enormous quantities of machinery, the project is commanding great interest as it draws toward a focus.

Apropos of this subject, the trade are following closely the movements in connection with the New York State Barge Canal, which was sanctioned by the last general election. The contracts will be awarded in the spring, and the contractors will require a very extensive machinery equipment. The appropriation for the work is $101,000,000.

We are officially advised that the Eastern Steel Company of Pottsville, Pa., of which William F. Donovan of 45 Cedar street, New York, is president, contemplate the expenditure of $1,000,000 for the extension of their plant. It will be recalled that this company have been heavy purchasers of machinery and steel plant equipment throughout the last year. The plans for the extensions now under consideration are not fully completed. We understand, however, that the work will include the erection of a large machine shop, blacksmith shop, foundry and rolling mill. The extensions, it is understood, are for expanding the company's bridge and structural business.

C. M. Coen, president of the Coen Vessel Propelling System Company, advises us that it has been decided to build three shipbuilding plants for the construction of vessels according to a new system of screw propulsion. One will be located on the Hudson River, another at some point on the Ohio or Mississippi, and the third on the Pacific coast. Plans for the plants are not completed.

The Onondaga Mfg. & Promoting Company have been formed to take over the property and interests of the Onondaga Mfg. Company of Syracuse, N. Y. The new company have recently moved into larger quarters, which, however are temporary, the company intending to build a large and extensive plant as soon as proper arrangements are completed. The lines of goods to be manufactured are said to be very extensive, the company having a large list of patents issued and pending, covering a line of goods, including household and kitchen utensils, mechanics tools and store and office fixtures. The company are preparing to purchase a quantity

of sheet metal machinery, punches, presses, also a number of automatic machines. They are seeking information relative to machinery of nearly every class. They are at present using individual electric motors throughout the factory, the power being furnished by the city's plant. Plans for the new plant include a complete power generating outfit. P. P. Kinney is secretary of the company.

J. Crawford Bartlett, southeast corner Tenth and Filbert streets, Philadelphia, is now in the market for kaolin working machinery, conveyors, driers, filter presses, pumps and screens, and desires manufacturers of these lines to communicate with him regarding same.

Within the next few months it is probable that the Love Mfg. Company, founders and machinists, Corry, Pa., will require considerable machinery. They inform us that they are putting up temporary buildings to replace those destroyed in the recent fire, and are repairing some of the machinery to take care of the fall and winter trade. In the early spring they will rebuild permanently.

The American Steam Superheater Company of Boston, Mass., report orders for their superheaters from the Atlantic Mills in Providence, R. I., and the Nashua Light, Heat & Power Company of Nashua, N. H., the first named being for use with a Westinghouse 400-kw. turbine, and the last named for three 500-kw. General Electric turbines.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until December 1 for the following supplies for the New York Navy Yard:

Class 1. Eight 100-kw. generating sets, including dynamos, engines and appurtenances.

Class 2. Eight 3 horse-power motors.

Class 3. One electric motor, with drum controller.

Class 147. Six 1-ton and four 2-ton armature trolley hoists and blocks, combined, without traveler.

Class 148. One two-spindle drill press, capacity up to ⅝ inch.

Class 149. One 14-inch screw cutting engine lathe, with 7-foot bed.

Proposals will be received at the Bureau of Supplies and Accounts, Navy Department, Washington, until December 15, to furnish at the Mare Island, Cal., and Puget Sound, Wash., navy yards a quantity of supplies, including machine tools, electric motors, fan blowers, &c.

Catalogues Wanted.—The Fred. W. Wolf Company, engineers and machinists, of 139-143 Rees street, Chicago, have installed a new catalogue and trade index system, and are desirous of bringing their collections of trade literature up to date. The company manufacture ice and refrigerating machinery, install complete beet sugar factories, and do a large supply business.

New York.

NEW YORK, November 18, 1903.

Pig Iron.—There is but little inquiry. It is observed that a very considerable part of the Southern Irons, while up to grade as to fracture, are rather low in silicon. Many founders are growing more critical on this point, while, on the other hand, the furnaces show no disposition to guarantee silicon contents for certain grades. Southern Iron has been selling down to the basis of $9.25 for No. 2, the reports of sales down to $9 being unfounded. We quote Northern No. 1 X Foundry, $15 to $16; No. 2 X Foundry, $14.25 to $15, and Gray Forge, $13.75 to $14.50, tidewater. Tennessee and Alabama brands are quoted $13.50 to $14 for No. 1, $13 to $13.50 for No. 2, and $12.50 to $13 for No. 3.

Steel Rails.—The domestic market is very quiet, few orders of any consequence coming out. The mills have a good tonnage on their books, but orders to roll in the near future come in very slowly. At the meeting of the Steel Rail makers last week it was decided not to make any change in prices. It is true, as reported, that the Maryland Steel Company have taken an order for 20,000 tons of Rails for delivery at Beirut. The specifications are said to be peculiar. We continue to quote $28, at the mill, for Standard Sections.

Cast Iron Pipe.—Bids will be opened in this city on November 25 for several lots of Pipe for municipal purposes, aggregating about 3000 tons, and comprising 6, 12 and 20 inch sizes. Competition is sharp for all business coming out now, and each letting of any size develops a lower rate than the one before it. Carload lots at tidewater are quoted at $28 per gross ton for 6 to 10 inch, and $27 for 12-inch upward.

Finished Iron and Steel.—Structural work is quiet. Nothing of importance has transpired in bridge contracts, but it is now confidently expected that next month will see considerable doing in this line. Building contractors look forward to a dull winter. Leading contractors state that they are not putting forth much effort to secure work, preferring to wait until they are certain that labor conditions are thoroughly settled. Plates are in fair demand in small lots, but the volume of business is less than at the beginning of the month. Both Iron and Steel Bars are selling more freely, buyers showing a disposition to take hold at current prices. Several good sized contracts have been placed this week. We quote, at tidewater, as follows: Beams, Channels and Zees, 1.75c. to 2c.; Angles, 1.75c. to 2c.; Tees, 1.80c. to 2c.; Bulb Angles and Deck Beams, 1.90c. to 2.85c. Sheared Plates, in carload lots, are 1.78c. to 1.85c. for Tank, 2c. to 2.10c. for Flange, 2.10c. to 2.20c. for Marine and 2.25c. upward for Fire Box. Refined Bars are 1.40c. to 1.60c., according to quality; Soft Steel Bars, 1.44½c. to 1.50c.

Old Material.—Few transactions are reported, but offerings continue large, especially from railroad companies. Track material is conspicuously weak. Sales of old Steel Rails have been made at $8 on the line of the road. No market appears at present for Relaying Rails, while the quantity offered steadily grows larger. Cast Scrap is lower as a result of the cheap prices now ruling on Pig Iron. Approximate figures are as follows per gross ton, New York and vicinity:

Old Iron Rails	$14.50 to $15.00
Old Steel Rails, long lengths	11.50 to 12.00
Old Steel Rails, short pieces	9.50 to 10.50
Relaying Rails, heavy sections	18.00 to 19.00
Old Car Wheels	12.00 to 13.00
Old Iron Car Axles	16.00 to 17.00
Old Steel Car Axles	14.50 to 15.00
Heavy Melting Steel Scrap	9.50 to 10.50
No. 1 Railroad Wrought Iron	12.50 to 13.00
Iron Track Scrap	11.00 to 12.00
Wrought Pipe	8.00 to 9.00
Ordinary Light Iron	5.00 to 6.00
Cast Borings	4.00 to 4.50
Wrought Turnings	7.00 to 7.50
No. 1 Machinery Cast	11.00 to 11.50
Stove Plate	9.50 to 10.00

Iron and Industrial Stocks.

At the time of going to press last week the condition of the stock market was quite weak, although some slight recovery had occurred from the low record prices made on some of the industrials on the immediately preceding days. A change for the better occurred on Friday, which was assisted by the subsidence of what appeared to be severe liquidation in Pennsylvania Railroad stock. The improvement continued until Saturday, when the high prices of the week were reached. During the current week the market for industrial stocks has been fairly steady, although the high prices of Saturday have not been maintained on United States Steel stocks. Other stocks showed some strength, notably Can preferred, which advanced to 30 on November 17, against 27¼ on the 12th; Colorado sold up to 29, against 25¾ on November 12; Pressed Steel, common, 27¾, against 25¼; Republic, preferred, 50, as compared with 48¼, and Tennessee Coal 28¾, against 26½. The United States Steel stocks showed steadiness in the common, but a recession in the preferred from 52⅞ on November 14 to 50⅝ on November 17. The new 5's fluctuated during the week between 65¼ and 67⅛, closing on the 17th at 66⅜. The prices on active industrials at 1.30 p.m. on Wednesday were as follows: Can, preferred, 30; Car & Foundry, common, 19⅜; preferred, 66½; Locomotive, common, 12½; preferred, 75; Colorado, 28¾; Sloss-Sheffield, common, 24; preferred, 66; Tennessee, 28; Republic, common, 7; preferred, 49¾; Pressed Steel, common, 27½; preferred, 68½; United States Steel, common, 10⅜; preferred, 50⅝; new 5's, 66¾.

Last week the National Fireproofing Company of Pittsburgh passed the dividend on their common stock. The following resolution was adopted by the directors of the concern: "*Resolved*, That while the dividends have been earned, it is deemed inadvisable for the present to declare a dividend on the common stock of this company, the best interests of the stockholders being subserved by placing these earnings to the surplus fund."

At the monthly meeting of the directors of the Pittsburgh Coal Company of Pittsburgh, held last week, the deal whereby that company secure entire control of the Mansfield Coal & Coke Company was ratified. At the above meeting there was also submitted a report of the earnings of the Pittsburgh Coal Company for the first ten months of the year. These show $5,917,061.93 for 1903, as compared with $3,590,426.18, or an increase of $2,326,635.75 over the same period last year.

The Colorado Fuel & Iron Company have called a special meeting of stockholders for December 15 for the purpose of amending the articles of incorporation so as to permit the company to raise funds by placing a mortgage on the property. This has heretofore been impossible, because of a prohibitive clause in the articles of incorporation, which is to be repealed. The amount needed is about $14,000,000, of which $5,000,000 will be used to repay money borrowed from stockholders.

The fourth installment of 20 per cent. on the new Lackawanna Steel Company stock has been called, payable next month.

The directors of the Danville Bessemer Steel Company have voted in favor of the dissolution of the company and the distribution of the assets among the stockholders.

The Monongahela River Consolidated Coal & Coke Company of Pittsburgh have filed in the Register and Recorder's office of Fayette County a supplementary mortgage to that of September 30, 1899, to the Union Trust Company of Pittsburgh for $10,000,000. The original mortgage

was for this amount, but the supplemental mortgage embraces more coal lands than the first. The directors and stockholders in 1899 decided to make an issue of bonds for $10,000,000 in denominations of $1000 each, payable in 50 years and bearing 6 per cent. interest, payable semiannually. The issue was to be secured by a mortgage on the coal lands held by the company in Allegheny, Washington, Westmoreland and Fayette counties. By the terms of the mortgage it was to cover not only the holdings of the company at that time, but any property they might thereafter acquire. The directors of the coal company met October 28, 1903, and authorized the execution and delivery of such an indenture to cover properties acquired since.

Dividends.—International Harvester Company have declared a dividend of 3 per cent.

American Steel Foundries Company have declared a quarterly dividend of 1½ per cent. on the preferred stock, payable December 1. Books close November 20 and reopen December 2.

The Allegheny Heating Company of Allegheny, Pa., suppliers of natural gas, have declared the regular quarterly dividend of 3 per cent.

Foundry Wages and Hours.

The following table of molders' minimum wages and daily hours of labor in jobbing and machinery foundries is taken from a report of the Special Committee on Uniform Agreements of the National Founders' Association:

City.	Floor.	Bench.	Hours.
Akron, Ohio	$3.00	$3.00	10
Albany, N. Y.	3.00	3.00	9
Alliance, Ohio	2.75	2.75	9
Anaconda, Mont.	4.00	4.00	9
Ansonia, Conn.	2.75	2.50	9
Auburn, N. Y.	2.65	2.65	9
Baltimore, Md.	2.75	2.75	9
Battle Creek, Mich.	2.75	2.75	10
Barberton, Ohio	2.90	2.90	10
Bay City, Mich.	2.75	2.75	9
Beaumont, Texas	3.50	3.50	9
Beloit, Wis.	2.90	2.75	10
Bessemer, Ala.	3.00	3.00	9
Birmingham, Conn.	2.75	2.50	9
Birmingham, Ala.	3.00	3.00	10
Boston, Mass.	2.75	2.75	9
Bridgeport, Conn.	2.75	2.50	9
Brooklyn, N. Y.	3.00	2.75	9
Buffalo, N. Y.	2.80	2.80	10
Butte, Mont.	4.00	4.00	9
Camden, N. J.	2.75	2.75	10
Chester, Pa.	3.00	3.00	10
Chicago, Ill.	3.00	3.00	9
Cincinnati, Ohio	3.20	3.00	10
Cleveland, Ohio	3.00	3.00	10
Cold Spring, N. Y.	3.00	2.75	10
Colorado Springs, Col.	3.50	3.50	9
Columbus, Ohio	2.85	2.85	10
Dallas, Texas	3.00	3.00	9
Dayton, Ohio	2.90	2.65	10
Denver, Col.	3.50	3.50	9
Derby, Conn.	2.75	2.50	9
Detroit, Mich.	3.00	2.80	10
Elizabeth, N. J.	3.00	3.00	9
Erie, Pa.	2.80	2.80	10
Eureka, Cal.	3.50	3.50	9
Fort Worth, Texas	3.25	3.25	9
Halifax, N. S.	2.25	2.25	9
Hamilton, Ont.	2.65	2.65	10
Hancock, Mich.	3.10	3.10	9
Hartford, Conn.	2.75	2.75	9
Holyoke, Mass.	2.75	2.75	10
Houston, Texas	3.30	3.30	9
Indianapolis, Ind.	3.00	2.80	10
Jackson, Mich.	2.75	2.75	10
Jersey City, N. J.	3.00	2.75	9
Lynn, Mass.	2.75	2.75	9
Long Island City, N. Y.	3.00	2.75	9
Memphis, Tenn.	3.25	3.25	9
Los Angeles, Cal.	3.37½	3.37½	9
Mt. Vernon, Ohio	2.85	2.85	10
Milwaukee, Wis.	3.00	2.80	10
Minneapolis, Minn.	2.88	2.88	9
Moline, Ill.	2.75	2.75	10
Montreal, Quebec	2.55	2.55	10
Newburg, N. Y.	3.00	2.75	10
Newark, N. J.	2.90	2.65	9
New Castle, Pa.	3.00	3.00	9
New Haven, Conn.	2.75	2.75	10
New London, Conn.	2.75	2.75	9
New Orleans, La.	3.00	3.00	9
New York, N. Y.	3.00	2.75	9
Omaha, Neb.	3.05	...	9½
Omaha, Neb.	...	2.88	9
Paterson, N. J.	2.90	2.70	10
Peoria, Ill.	3.00	3.00	10
Peekskill, N. Y.	3.00	2.75	10
Philadelphia, Pa.	2.90	2.90	9
Pittsburgh, Pa.	3.00	3.00	9
Plainfield, N. J.	2.75	2.75	9
Portland, Ore.	3.50	3.50	9
Poughkeepsie, N. Y.	3.00	2.75	9
Providence, R. I.	2.75	2.75	10
Quincy, Ill.	2.75	2.75	9
Racine, Wis.	2.85	2.65	10
Richmond, Ind.	2.65	2.65	10
Rochester, N. Y.	2.75	2.75	9
San Antonio, Texas	3.00	3.00	9
San Francisco, Cal.	3.25	3.25	9
Saginaw, Mich.	2.75	2.75	9
Salem, Mass.	2.75	2.75	9
Salem, Ohio	2.75	2.75	9
Scranton, Pa.	2.75	2.75	10
Seattle, Wash.	3.50	3.50	9
Seneca Falls, N. Y.	2.60	2.60	10
Sing Sing, N. Y.	2.75	2.75	9
Springfield, Mass.	2.75	2.75	9½
Springfield, Mo.	3.00	3.00	9
Springfield, Ill.	2.90	2.90	10
Springfield, Ohio	2.90	2.65	10
St. Joseph, Mo.	2.85	2.85	9
St. Louis, Mo.	3.00	2.90	9
St. Paul, Minn.	2.88	2.88	9
Syracuse, N. Y.	2.70	2.70	9
Tacoma, Wash.	3.50	3.50	9
Toledo, Ohio	2.75	2.75	10
Toronto, Ont.	2.75	2.75	9
Toronto, Ont.	2.75	2.75	10
Trenton, N. J.	2.75	2.75	9
Troy, N. Y.	3.00	3.00	9
Utica, N. Y.	2.75	2.75	9
Vancouver, B. C.	3.50	3.50	9
Victoria, B. C.	3.50	3.50	9
Washington, D. C.	2.75	2.75	9
Waterbury, Conn.	2.75	2.75	9
West Superior, Wis.	2.88	2.88	9
Wilmington, Del.	2.47½	2.47½	9
Windsor Locks, Conn.	2.75	2.75	9
Warren, Ohio	2.90	2.90	9
Worcester, Mass.	3.00	3.00	10
Youngstown, Ohio	3.00	3.00	9

Metal Market.

NEW YORK, November 18, 1903.

Pig Tin.—Owing to a speculative movement in London, which carried quotations there upward, this market sympathetically scored a slight advance. The almost total lack of demand here, however, allowed the figures to stand unchallenged, and they are nominal at best. The market is without interest. The statistical position is unchanged. The arrivals so far this month amount to 1542 tons, and it is figured that 1105 tons are afloat. Closing quotations today were as follows: Spot to December, 25.10c. to 25.50c.; London, £116 7s. 6d. for spot and £117 10s. futures.

Copper.—The apathy of consumers is more apparent than ever. Business is termed "dead" in all quarters of the trade. In addition to the complaints about the lack of demand on the part of home consumers considerable is to be heard about the falling off of export business. The "official" quotations posted on the New York Metal Exchange are as follows: Lake, 13⅜c.; Electrolytic, 13⅛c.; Casting, 13c. Oueside of the Exchange all brands are said to be obtainable at about 13c. The London market has declined to £55 15s. for spot, £55 7s. 6d. for futures and £61 5s. for Best Selected.

Pig Lead.—On Tuesday the American Smelting & Refining Company reduced their price from 4.40c. to 4.10c. This is based on 50-ton lots of Desilverized, New York delivery, shipment within 30 days. Holders of spot metal here are standing out for 4.25c., and St. Louis quotes spot 4.02½c. The London market is unchanged, at £11 1s. 3d.

Spelter.—Is very weak, and the market has declined somewhat since our last writing. Spot is nominally 5.50c., and there are sellers of November and December delivery at 5.12½c. St. Louis telegraphs 4.75c. and London has declined to £20 15s.

Antimony.—The market is quiet and steady. Cookson's is quoted at 7c., Hallett's at 6¼c. and other brands at 5¾c.

Nickel.—No change is noted in this market, 40c. to 45c. being quoted for large lots, and 50c. to 60c. for smaller quantities.

Quicksilver.—The market is quiet, but steady. Flasks of 76½ lbs. are quoted at $47.50. London cables £8 10s.

Tin Plates.—The market has contained nothing of interest since last week's reduction in price. No increase in demand is reported. Quotations are made on the basis of $3.60 per box of 14 x 20 100-lb. Cokes, f.o.b. mill, equivalent to $3.79, New York. Welsh Plates declined 1½ pence to 11 shillings, f.o.b. Swansea.

Application has been made in the United States Court for a receiver for the Compressed Air Company, New York.

SARGENT & CO.'S OYSTER SUPPER.

THE heads of departments of Sargent & Co., New Haven, Conn., to the number of 42 held one of their most enjoyable meetings at Cox's Surf House, Savin Rock, on Thursday evening, November 12, at which time an elaborate oyster supper was served. The Reception Committee consisted of A. R. Kirschner, E. S. Vinten, F. G. West, F. J. Chatterton and A. D. Baker, reinforced and assisted by Chas. Bradford. At 8.15 the band struck up a march and the party marched into the dining hall. The tables were decorated with chrysanthemums in colors. The party remained standing while singing "America," after which the chairman, J. B. Freysinger, called the gathering to order. During the supper several catchy songs, composed for the occasion by W. H. Wright, were sung to popular airs with great spirit and enthusiasm. At the conclusion of the supper M. F. Campbell, as toastmaster, introduced the different speakers of the evening. On account of the unavoidable absence of the head of the firm, J. B. Sargent, Mr. Fenn responded to the toast, "Things of Interest." Other speakers were H. McCullom, F. J. Ryan, F. J. Chatterton, Z. Sargent and E. E. Lord. The occasion proved to be a most successful one in every particular.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS *for catalogues, price-lists, quotations, &c., have been received from the following houses:*

FROM BURKE & COWAN, who have just embarked in business at Avery, O. T., as dealers in Shelf Hardware, Stoves, Tinware, Agricultural Implements and Sporting Goods.

FROM ALBEE & SELTZ, who have lately purchased the Shelf and Heavy Hardware, Stove, Tinware, Agricultural Implement, Paint and Sporting Goods business of Ainsley Hardware Company, Galeton, Pa.

FROM JOHN LA FOLLETTE, who has just purchased the Hardware business formerly conducted by Oswald Hardware Company at Blakesburg, Iowa.

FROM PERRY HARDWARE COMPANY, Cuthbert, Ga., who have lately commenced business as dealers in Shelf and Heavy Hardware, Stoves and Tinware, Farming Implements, Sporting Goods, &c. They also have a plumbing and tin shop.

FROM MITCHELL-ASHLEY HARDWARE COMPANY, Columbia, Tenn., who have just been organized and will commence January 1 handling Shelf and Heavy Hardware, Stoves and Tinware, Agricultural Implements, Sporting Goods and Furniture.

FROM HEARN BROS., who have purchased the Hardware, Stove, Tinware, Paint and Harness business of J. L. Myers at Hastings, O. T.

THE stockholders of the Greer Hardware Company, Cairo, W. Va.—W. Homer Greer, William Hall, Richard Wanless, Creed Collins and Mrs. Marion C. Greer—have incorporated their business as the Greer Supply Company, with a paid up capital of $25,000. This company's new brick structure, 45 x 100, three stories, and which joins their present quarters, will soon be ready for occupancy. The present storerooms will be used for warerooms purposes. A jobbing department will be run in connection with their retail business, and the following goods will be handled: All kinds of Heavy and Shelf Hardware, Agricultural and Harvesting Implements, Steel and Wrought Iron Ranges, Stoves and Heaters; Tin, Wooden, Granite, Enamel, Silver, Copper and Earthen Ware; Galvanized, Steel and Iron Pipe and Fittings; Pumps and Pump Supplies, Roofing, Sewer Pipe, Fertilizers, Cordage, Blocks, Coil Chain, Sportsmen's, Blacksmiths', Builders', Painters', Plumbers' and Gas Fitters' Supplies, Gas Fixtures, Wire Fencing, Harness, Wagons and Vehicles of all kinds, Lumber and Mill Work, Furniture, House Furnishings, Queensware, Silver, Fine China and Rich Cut Glass, Sewing Machines, Musical Instruments, Paints, Oils, Leads, Varnishes, Brushes, Cutlery, &c. The company are carload buyers, and would be pleased to receive catalogues and circulars with best cash discounts and net prices.

TRADE ITEMS.

THE L. S. STARRETT COMPANY, Athol, Mass., have bought the entire fine Machinists' Tool business of the J. Stevens Arms & Tool Company, Chicopee Falls, Mass., including manufactured stock, stock in process, special tools for manufacturing and good will. The Firearms part of the Stevens business having grown so rapidly that the company found it necessary either to erect more buildings, curtail their product, or dispose of some department, and the L. S. Starrett Company having made a satisfactory offer for the Tools, the sale of this portion of the company's business was closed on the 13th inst., the transfer to take place on the 20th. The J. Stevens Arms & Tool Company will immediately occupy the space thus vacated in increasing their Firearms output, making them one of the largest manufacturers in this line in the country. They will also enlarge their production of Automobiles, among the makers of which they are taking a leading place.

THE RICHARDS MFG. COMPANY, Aurora, Ill., are sending an announcement to the trade, stating that they have recently purchased the plant formerly owned and operated by the Richards & Sencenbaugh Mfg. Company of Aurora, Ill., including all machinery, dies, tools, stock, &c. They are now operating the plant and manufacturing their entire line of Door Hangers and Hardware Specialties. Upon the completion of their new building, which is being erected on the main line of the Chicago, Burlington & Quincy Railway, this recently acquired plant will be moved to the new quarters, affording one of the best equipped and most modern factories for their line of manufacture.

THE style of the J. I. Case Implement Company, Minneapolis, Minn., has been changed to the Great Northern Implement Company. The change of name does not affect the business or management of the company.

THE business of the old firm of H. R. Ives & Co., Montreal, Canada, established in 1859, has been taken over by the H. R. Ives Company, Limited, capital $350,000, H. R. Ives, president, and Samuel Coulson, vice-president. The company now employ nearly 500 hands and have large contracts for Architectural Iron Work of every description, including Artistic Wrought Iron and Bronze Work. Brass and Iron Bedsteads are also a large item with them, having been in this line since 1871.

SMITH & HEMENWAY COMPANY, 296 Broadway, New York, have subdivided their illustrated and descriptive "Green Book of Hardware Specialties," which is attractively printed on a green French folio paper, into four sections. These sections, entitled "Glaziers'," "Electrical," "Razor" and "Caster," were printed in compliance with the request of many customers to get up a catalogue compact enough to be conveniently carried in the pocket for ready reference.

NATHANIEL R. BRONSON, attorney, 144 Bank street, Waterbury, Conn., has been appointed trustee of the bankrupt estate of E. S. Wheeler & Co., New Haven, Conn. An inventory of the stock is now being taken, and it is announced that the stock, fixtures, &c., will be sold as soon as possible, either in one lot or several large lots. The estimated value of the stock is $40,000, covering a very complete line of Plumbers' and Tinners' Supplies and Tools.

A LONDON firm of metal merchants complain that while they have always suffered heavily through their correspondents in America, because of understamped letters on which additional postage must be paid by the addressee, during the last fortnight this nuisance and loss has been particularly annoying. Mailing clerks should be cautioned to fully prepay letters passing through their hands.

HARDWARE.

ONE of the interesting things in business is the constant illustration of the law of action and reaction. An abnormal situation in one direction is usually met later on by an equally normal condition in the opposite direction. This is applicable to the filling of orders. During the past five years manufacturers of Hardware have been driven beyond their capacity, and this in spite of increase in machinery and in their force, which they have been adding to from time to time. Dealers have in many lines been begging for goods, often without avail. It was a case of there being a larger demand than they could take care of. As a result, manufacturers in some lines have been from four to eight months behind on their orders. It takes time to add to the capacity of a plant, but this has been done to an extent that few can realize.

Now it has come about that this capacity has become effective, and coincident with this is the other fact that the demand is for the time being falling off, and the wheels are beginning to run slower. We cannot attempt to say how far this slackening will go. The shutting down of every mill adds to it by increasing the number of idle men and restricting purchases. The belief is current that we shall not go to the comparatively low levels of former times when the demand was light and stocks were plenty, but it is probable that there will be a perceptible difference between the prosperity of the past few years and what awaits us.

In order to get goods, jobbers have been placing their orders far ahead in large quantities, but in future conditions promise to be completely reversed. Ordering by dealers will naturally be of the most conservative kind—from hand to mouth. It is going to be a question of getting the goods quickly when they are wanted. Those distributers who have been dealing with their favorite manufacturer, and find that he has not the goods when wanted, will be apt to try somewhere else and keep on trying until the demands are met. It follows, therefore, that the carrying of stock promises to be shifted largely from the shoulders of the distributers to that of the manufacturers. Dealers will expect orders to be filled with little or no delay. The manufacturers who have the goods on hand, particularly in lines of staples, will have an advantage in securing business. While a weak and declining market gives a special opportunity for making advantageous contracts, and invests the buyer in mercantile establishments with a new importance, the ability of manufacturers to ship promptly is likely to prove as strong an inducement and as dominant a factor in selling goods as will the mere matter of price.

Our readers cannot but be impressed with the practical character and substantial value of the papers read before the American Hardware Manufacturers' Association at their meeting now in progress at Atlantic City. Calling attention, as they do, to abuses to be corrected and the proper lines on which business should be conducted, they are deserving of careful consideration. The line of work laid out for the association shows that there is much which can be accomplished by an organization which brings together the manufacturers in the Hardware field. With their very diverse interests there are many things in which they have a common concern, and some of these are discussed in the admirable papers presented herewith.

Condition of Trade.

The advance of the season is announced in the increased demand for holiday and winter goods, which is being made both upon the manufacturers and jobbers of these lines. While most of the trade, who are energetic and prompt in the conduct of their business, placed their orders some time ago, and, indeed, in many cases have the goods already in stock, there are many this year, as every year, who are caught unprepared for the trade which sets in in anticipation of or at the early touch of winter weather. In connection with these goods there is a moderate volume of business doing in general lines. More decidedly this year than in recent years there is a desire on the part of the merchants to keep stocks down in view of the near approach of the annual inventory. This feeling is emphasized by the tone of the market, which is confessedly one which tends to lower values, especially in the crude and heavy goods. Changes in price are, however, taking place only very gradually, and few of the staple goods in which labor is much of an element have shown any marked weakness. Most of them are held steadily at about former prices. Even in these lines, however, there is evidence of a willingness on the part of the manufacturers to give inducements to purchase, from a desire to have their order books at least fairly filled. The gatherings of the manufacturers and jobbers this week at their conventions at Atlantic City will naturally attract a good deal of attention from the trade. Questions of vital interest to both these great classes are under consideration. In some of these questions also the retail merchants are, perhaps, as directly interested. In view of the slackening of the demand some of the manufacturers are reducing slightly their output so as to avoid accumulating unwieldy stocks. In a few cases slight reductions in wages have been made, but these are not at all general. It is unquestionably the part of wisdom for manufacturers and merchants to proceed conservatively in the present juncture, not in an apprehensive spirit, but in the hope that after the readjustment of values and production to match existing circumstances there will be a renewed demand and a large and profitable business. Fortunately, with the decline in the market there continues to be activity and prosperity among the masses of the people. The large crops which are now safely gathered should contribute greatly to the continuance of general wellbeing. There are many signs, too, that foreign markets are to furnish an outlet for a materially increased volume of trade. This will do much to keep the wheels of industry moving.

Chicago.

(By Telegraph.)

Local wholesalers and jobbers here report business fair to good, though they complain somewhat at the hand to mouth character of the trade secured. The retail Hardwareman is thoroughly posted as to market conditions and shares the common anticipation of lower prices later on in the winter. With the suspension of large outdoor agricultural operations incident to cold weather the demand for Hardware for repairs will increase. No official reductions in prices are named, except in the matter of Sledges, which have been lowered. Wire products are still being held at the old price by the controlling producer, with no likelihood of immediate reduction. Cut Nails are only fairly active, except in certain of the larger sizes. Holiday goods are increasing in demand and predictions are that this year's trade will be from 75 to 90 per cent. over that of last year.

St. Louis.

(By Telegraph.)

Reports from the Hardware jobbers continue along favorable lines, and trade has shown but slight signs of hesitancy during the period of changeable prices in the iron and steel markets. The apparent slight interest manifested in outside weakness is pointed out as indicative of the pronounced confidence dealers have in the stability of their trade. Conservative buying shows on all sides, and this fact is a safeguard against future developments of an unsatisfactory nature. The change from mild to cold weather is marked by a greater degree of demand for certain lines of seasonable goods. The heavy department has had to contend with revised price-lists of some lines of heavy materials, but as yet no substantial increase in the trade has been secured by the new inducement, and business is said to continue on a conservatively moderate basis.

Boston.

BIGELOW & DOWSE COMPANY.—The past two weeks the weather has been variable, but during that time heavy snows have fallen in the Eastern portion and keen cold has been a gentle reminder of the coming winter.

The favorable weather has helped the sale of seasonable goods, like Air Tight Heaters and Snow Shovels, Ice Chisels, Skates, &c. The Nail market is a waiting one. Customers are buying from the jobbers for their immediate needs. There are few inquiries for carload lots. While prices are very low they are well maintained. A correspondent calls the attention of *The Iron Age* to "unusual" conditions existing in this market, which, we think, gives a wrong impression. Jobbers are selling their customers at a less price than the factories will sell, but do make a higher price from store to cover the cost of storing, carting and delivering. This condition has existed for years and has the support of the retail trade, as it gives stability to their prices. It is nothing new that some foolish dealers sell Nails and other goods at no profit. They always have and always will.

The reduction in steel and iron has made slightly lower prices on Heavy Hardware where material is the principal cost, but on general lines the extra cost of labor more than counterbalances this lower cost. With a few exceptions prices are being well maintained.

New England will be well represented at Atlantic City the coming week.

Cleveland.

THE W. BINGHAM COMPANY.—A large volume of business is coming to Cleveland jobbers in all their lines of Hardware at the present time, and it is surprising to see the amount and assortment of Carpenters' Tools that are contained in these orders, especially at this time of the year. Yet it is hardly to be wondered at, as the Cleveland Hardware jobbers always carry the best makes of these goods and the retail dealer knows where he can get his wants in this line well supplied.

Now that the election is over, our people are turning their time and attention strictly to business, and we see no reason why a good, healthy trade should not come to us the balance of this year.

Holiday goods are selling quite freely at the present time—that is, our customers are sorting up their stocks of Skates, Cutlery, Sleds, Fancy Hardware, Tea and Coffee Pots, &c., that go to make up Christmas presents.

Many orders are being booked at this time for Screen Doors and Windows, Wire Cloth, Poultry Netting, Poultry Netting Staples, Ice Cream Freezers, Rubber Lawn Hose, Scythes, Snaths, Steel Goods, Railroad Milk Cans, Oil Cloth, &c.—that is, goods to be shipped after the first of the year. Our trade in these lines is always so large that our customers realize that they must get their orders in early so that we will be able to ship them promptly after the first of the year.

Cleveland has one of the largest automobile factories in the country—viz., the Winton Motor Carriage Company. They employed 800 men last year, and they now employ 1200, and the machines are being sold as fast as they can turn them out.

Last year they made 750 touring cars of the $2500 class, three carloads of which were shipped to Mexico within the last week. It is estimated that they will turn out between January 1 and June 1, 1904, at least 1000 carriages. This factory is but one of 18 or 20 factories of its kind in this city. It may be readily seen that a large amount of Hardware and supplies is consumed by this industry alone.

There is still a shortage of freight cars, but not so bad as last winter. The trouble this year seems to be to find cars to take care of the business of small towns—that is, to ship their produce to markets. Carload shipments of goods are constantly coming to Cleveland, but as soon as one of these cars is unloaded there are goods waiting for it here, and the car goes out of Cleveland loaded, giving the transporation companies little opportunity to send empty cars to the smaller towns as quickly as they would like. However, it is a well-known saying that "All things come to him who waits."

Philadelphia.

SUPPLEE HARDWARE COMPANY.—There is no material change visible in the average volume of the daily distribution of Hardware since our last letter to *The Iron Age*.

There does not appear to be any pessimistic feeling with the trade caused by either the reduction of the working force or the output of pig iron and structural iron by the United States Steel Corporation. But there does exist a general regret that appearances indicate that striking workmen are looked upon as largely indirectly responsible for the necessary reduction of the output, and the reason is given that the strikes in the building trade have materially reduced orders. We admit it has the appearance that building operations have been largely curtailed by reason of the strikes during the last few months.

The feeling exists that the demand for increased wages from the workmen of nearly all manufacturers of Hardware (and which demand has been conceded) will prevent any material reduction in the average price of Hardware. We think the trade will be very much surprised to learn of very many changes, and acting in this belief we think there are very few wholesale Hardware houses who have starved their stocks in anticipation of making money by any trifling reductions that may occur.

The meeting of the National Hardware Association, as well as the meeting of the American Hardware Manufacturers, during the days of November 18 to 20, inclusive, will give an opportunity for both the jobbers and manufacturers to consult and confer upon matters of this nature; and possibly an opinion expressed after that meeting would be of more value than an opinion expressed at this writing. We feel that good results will be achieved from the fact of these two meetings, especially at this particular time, from the fact that a survey of general conditions will likely be at that time discussed.

Louisville.

BELKNAP HARDWARE & MFG. COMPANY.—There is so much happening nowadays between Wall Street and the rolling mills, the devil and the deep blue sea, that the correspondent on the outside knows hardly how to express himself over the situation. If he be a holder of Steel stock and not simply a beholder for the last two or three months, his spontaneous expressions would hardly be classed with the "news that's fit to print." Not all of us can take a trip East for the luxury of seeing the president of the Steel Corporation, as did the old gentleman of whom the story is told in the New York papers, but it is reassuring to know that the stable door is to be securely locked hereafter and that reduction in expenses is to be the order of the day. Useless offices are to be stricken out, consolidation of allied departments is to be effected, expensive New York quarters are to be exchanged for others nearer producing centers at Pittsburgh, no more palaces are to be built, questions of the construction of sundry canals and railroads are to be left to legitimate promoters and not undertaken by those whose business is to make steel rails and billets. If these virtuous resolutions had only been taken a little earlier, before the forced woeful shrinkage, how much

better it would have been for the country and the trade at large, for the number of stockholders is legion. A host of people were induced to buy, while the company were urging and tempting their own employees by certain guarantees to go into it as a safe investment. It is yet to be proven whether any of these trusts are going to be the great economies claimed or not, whether they are a blessing or something else in disguise. Anyhow, it is not comfortable to realize that Steel stock has become a football for speculators. Some of those in management were evidently not conservative buyers and sellers of the manufactured commodities. They counted too much on the methods of the stock market for their profits; they forced the commodity down into the depths by a single plunge with the expectation of hoisting it again a little later by sheer reaction. Meanwhile the railroads persist in showing increased earnings, there is money in the country banks and corn cribs, and the buyers who want anything seem to have the wherewithal to purchase. The recent declines would seem to be reassuring as to present prices, but when one of the presidents interviewed talks about bed rock and how we have reached it, we are a little skeptical. Bed rock now, according to comparison, is $10 per ton over bed rock at the time of the greatest depression. We will have to wait and see.

Omaha.

LEE-GLASS-ANDREESEN HARDWARE COMPANY.—The past two weeks have witnessed little change affecting the distribution of Hardware in a jobbing way. General trade is holding its own fairly well. A very large quantity of grain and corn will be marketed during the next few months, which is likely to create a season of heavier buying by producers, so that jobbers and retailers expect to be kept quite busy through the winter.

The financial condition of the agriculturists in the Trans-Missouri region is excellent. A series of years of good crops at remunerative prices has placed these producers in a comparatively independent position. A few years since this region was heavily in debt secured by mortgages. Now mortgages are the exception and the average farmer is out of debt, with a comfortable surplus in many cases. As long is these conditions exist a brisk and steady trade may be relied upon, no matter what may be going on in Eastern financial centers.

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—November business is running considerably ahead of last year, trade in all departments being unusually heavy. The demand for Heating Stoves, Stove Pipe, Coal Hods and other seasonable goods is enormous, much greater than the supply. There has also been done a tremendous business in the Toy Wagon and Velocipede line. We understand that there is not a factory in the country that will accept any further orders for these goods. It looks as if the merchants in the South have confidence in business for the coming year, as many of them are now placing early orders for future shipment. Quite a number of contracts on Poultry Netting, Wire Cloth, Steel Goods and similar lines have been entered with the jobbers. Collections continue to come in well, and the general conditions are very satisfactory.

Portland, Oregon.

CORBETT, FAILING & ROBERTSON.—We are having our first touch of winter weather—that is, what we know as winter in the Pacific Northwest, "cold rains." Up to within the last week we have had as fine weather, so far as comfort and pleasure is concerned, as could be found anywhere in the wide world; in fact, it has been too dry in some sections. Eastern Oregon and Washington have suffered as regards winter range for their live stock.

A matter of interest to us locally, the past week, has been the clearing for the Orient of one of the Pacific Mail's largest freight steamers, with the largest shipment of flour ever put afloat from any port.

It now looks as though the St. Louis Exposition had made the same mistake that Chicago did in postponing the opening one year from the time first decided on. The hard times now at our threshold will certainly affect the attendance, as did the panic of '93 affect Chicago.

Trade holds in fair volume, considering it is the middle of November. Prices are, however, in favor of buyer and are constantly tending lower at the expense of the jobber's profit.

NOTES ON PRICES.

Wire Nails.—The distribution from mills continues in about the same volume as for some time. The steady but moderate demand is confined to comparatively small orders. It is understood that good buyers are able to secure some concession. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carload lots	$2.00
Retailers, carload lots	2.05
Retailers, less than carload lots	2.15

New York.—The conservative policy followed by merchants in this city and nearby points has resulted in a continuance of orders for small lots from store. Quotations are as follows: Single carloads, $2.20; small lots from store, $2.25 to $2.30.

Chicago, by Telegraph.—A fairly active demand prevails and prices are held firm. We quote: $2.15 to $2.20, Chicago, in carload lots, the latter price being the one made to retailers.

Pittsburgh.—Contrary to report, the leading interest has not made official announcement of any reduction in price of Wire Nails. It is understood, however, that on desirable orders a reduction of about 5 cents a keg can be secured. Demand is light, buyers continuing to place orders for carloads and smaller amounts for actual needs. Official prices on which a rebate is allowed are as follows: $2 in carloads to jobbers, $2.05 in carloads to retailers and $2.15 in small lots, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days. For galvanizing Nails 75 cents per keg is charged and for tinning Nails $1.50 per keg extra.

Cut Nails.—The market continues in about the same condition as since the reduction in price, the demand being to a large extent for small lots. Quotations are as follows: $1.90, base, in carloads, and $1.95 in less than carloads, f.o.b. Pittsburgh, plus freight in Tube Rate Book to point of destination; terms, 60 days, less 2 per cent. off in 10 days.

New York.—The market remains steady, with a fair distribution of small lots from store. Quotations are as follows: Carloads on dock, $2.04½; less than carloads on dock, $2.12½; small lots from store, $2.20.

Chicago, by Telegraph.—The constantly declining prices of Scrap, from which Nail Plate is ordinarily rolled, is leading large buyers to refrain from anticipating more than their immediate necessities in Cut Nails. A fairly good volume of business is reported, and prices are unchanged from those of last week. The prices to jobbers here are $2.06½ in carload lots and $2.11½ in less than carload lots, and they retail from store at $2.25.

Pittsburgh.—It is claimed that the recent reduction of 25 cents a keg in price of Cut Nails has stimulated demand to a slight extent. However, buying is mostly of a hand to mouth character, as the trade does not seem disposed to contract ahead. The leading Cut Nail mills are fairly busy, but could take care of more trade if they had it. We quote: Steel Cut Nails, $1.90, base, in carloads and $1.95 in less than carloads; Iron Cut Nails, $2, base, in carloads and $2.05 in less than carloads, plus freight in Tube Rate Book to point of destination, 60 days, less 2 per cent. off in 10 days.

Barb Wire.—A light demand characterizes the market, made up for the most part of small lots. Slight concessions are made in price, but open quotations remain as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots	$2.30	$2.60
Retailers, carload lots	2.35	2.65
Retailers, less than carload lots	2.45	2.75

Chicago, by Telegraph.—Little interest is shown in this commodity, and there will be none aside from pick-up buying to replenish stocks until the spring demand opens up. Galvanized Wire is selling on the basis of $2.75 to $2.80 in carload lots, and Painted at $2.45 to $2.50, the outside price being to retailers. For small lots

5 to 10 cents extra is charged. Staples in carload lots sell as follows: Plain, $2.30 to $2.35, and Galvanized, $2.70 to $2.75, the outside price being to retailers.

Pittsburgh.—Demand is only fair, most of the orders received by the mills being for carloads and less quantities, which represent the actual needs of the buyer. There is no disposition on the part of the trade to contract ahead. We quote as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days: Painted, $2.25 to $2.30; Galvanized, $2.55 to $2.60, in carloads to jobbers; Painted, $2.30 to $2.35; Galvanized, $2.60 to $2.65, in carloads to retailers; Painted, $2.40 to $2.45; Galvanized, $2.70 to $2.75, in small lots to retailers.

Smooth Fence Wire.—The demand continues heavy, which keeps the mills fairly busy. Slight concessions are made in price, while open quotations remain as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	$1.90
Retailers, carloads	1.95
Less than carloads	2.05

The above prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12&12½	13	14	15	16
Annealed	Base.	$0.05	.10	.15	.25	.35	.45	.55
Galvanized	$0.30	.35	.40	.45	.55	.65	1.05	1.15

Chicago, by Telegraph.—This is quite an active seller and some contracts of fair magnitude have been closed at current prices, but probably with a guarantee against decline. We quote as follows: Nos. 6 to 9, $2.05 to $2.10 in carloads on track, and $2.15 to $2.20 in less than carload lots from store; Galvanized, 30 cents extra for Nos. 6 to 14, and 60 cents extra for Nos. 15 and 16.

Pittsburgh.—Considering the season of the year, the amount of tonnage being placed in Fence Wire is regarded as fairly satisfactory. Several of the leading interests are operating their mills to nearly full capacity. Concessions of about $1 a ton are being made on official prices, which are as follows: Plain Wire, $1.90, base, for Nos. 6 to 9 in carloads to jobbers, $1.95 in carloads to retailers and $2.05 in small lots to retailers; Galvanized, 30 cents extra for Nos. 6 to 14, and 60 cents extra for Nos. 15 and 16.

Heavy Hammers.—In view of the reduced cost of the raw material, the manufacturers of Heavy Hammers and Sledges are announcing lower prices on these goods.

Glass.—A meeting of Glass manufacturers was held at Columbus, Ohio, November 12 and 13, for the purpose of forming a central sales agency and to take action on advancing prices in conformity with the new wage scale. It is understood that the meeting adjourned without taking action and that another meeting will be held. The action of the Glass workers in adopting a uniform scale of wages has resulted in some manufacturers asking advances of from 5 to 10 per cent. on their product.

Cordage.—The demand for Rope shows a shrinkage incident to the season, but still in fair volume. The market appears firm at the following quotations, on the basis of 7-16-inch diameter and larger: Pure Manila, 11½ cents; second-grade Manila, about ½ cent per pound lower; Pure Sisal, 9¼ cents; Mixed Sisal, 8¼ cents per pound.

Oils.—*Linseed Oil.*—The market has gained firmness in tone during the week, but without any marked change in quotations. Demand continues light and confined to small lots. Quotations are as follows: City Raw, in lots of 5 barrels or more, 37 cents; in lots of less than 5 barrels, 38 cents per gallon. Out of town and Western Oil is quoted at 35 to 36 cents per gallon.

Spirits Turpentine.—The price which Turpentine has reached is unusually high, and Varnish manufacturers are considering the advisability of advancing prices of their products on this account. Demand at this point is poor and irregular. Quotations, according to quantity, are as follows: Oil barrels, 59½ to 60 cents; machine barrels, 60 to 60½ cents per gallon.

Correspondence.

Col. Thomas W. Bradley.

To the Editor: A few lines from my friend, Thomas W. Bradley, under date of September 15, say that he is "withdrawing from business this day, in the fiftieth year of service with the New York Knife Company."

"In the fiftieth year of service." That means back to 1853, and that seems as if looking back into a previous existence. What a record that is! Fifty years in the service of the one company; and he says truthfully, "in the service," although for so large a part of this time Mr. Bradley has been the head, the guiding hand—the company itself. And yet, no less, he has been "in the service." The man at the head of a business is, perhaps, the very one of all others of whom it can most truthfully be said that he is the servant of that house. The man who is the most master of his work is the one who serves his work the best.

I have a very distinct recollection of the label on our Table Cutlery boxes, back in 1866 and thereafter, having the New York Knife Company's name and trade-mark, and I remember being cautioned by my employer to always have Orange County on the letters, lest they go astray. The habit became so fixed that I put it on the address even to this day.

I commenced my Hardware experience when foreign Table Cutlery was making a despairing battle to hold the trade it had owned so long; and while we still gave 90 per cent. of our orders to England, we had to have a small line of American Table Cutlery for a few retailers who were not only "up to date," but, we thought, were a good deal ahead of the procession. And that little corner of the shelves showed the label of the New York Knife Company.

I cannot feel sure that this was because our buyer believed these were the best goods. I remember Colonel Bradley's father had a very convincing way of showing his products, and I think it was his personality, rather than anything else, that secured and held our trade.

This was 36 years ago, but that seems not such a long period when one compares it with 50. Fifty years! Think what an eventful half century they cover. There was the panic of '57, whose evil effects followed us until the Civil War made a demand for goods of every kind. There was the war, with its history-making results, and when Mr. Bradley's life is written his gallant services to his country will demand the brightest laurel wreath. There was the panic of '73, with its succeeding years of depression; years that tried the courage of the bravest business men. Then came the panic of '93, with its long train of evil until the tide turned again. But the 50 years end in a period of prosperity, such as the world never saw before.

In the special line with which Mr. Bradley was connected what a miracle has appeared! Fifty years ago every Pocket and Table Knife used and sold in this country, with very insignificant exception, was made for us in Europe—mostly in Sheffield. To-day the Cutlery importation from England is more insignificant, and that from Germany is largely of the Cheap John variety. The tide has turned completely, and American made goods are the rule to-day.

In bringing this about, both by his skill as a manufacturer and his ability to influence legislation in the right direction, no one has taken a more prominent or influential part than Colonel Bradley. The good friend who stood shoulder to shoulder with him through darkest days and fiercest fight, William F. Rockwell of Meriden, Conn., has passed away from us, but the work they did is a monument to them both. It is a somewhat sad review that passes through our minds when we look back over a quarter or a third or a half of a century of business relations. Yet it is a pleasant one, too, for all along the way one sees faces springing out of the mists: here, the face of a dear friend; there, another, and farther on another, till one feels as if he were once again surrounded with the genial souls that cheered his way.

How many of them were pioneers in their lines and

methods, and how very much the world owes them for their courage and ability! We all owe them more for their hopefulness and example than we would be willing to pay by a check on our bank account.

And in that goodly company of successful business men no man has held his own better, or with greater credit to himself and his branch of business than Col. Thomas W. Bradley. There is a wide gulf between a "captain of industry" who can float millions of stock based upon nothing but wind upon an innocent public and the "captain of industry" who carries his business through good and evil days, keeps his factory going, his employees at work, and faces the world smilingly and bravely. Such men are the ones that are the backbone of our business world, and they deserve all honor.

I am glad to know that Colonel Bradley is "withdrawing from business." He is a wise man to take off the harness while he is able to remove it himself, and his fellow-citizens have wisely sent him to Washington where they may benefit by his 50 years of business experience. It is a fitting ending to the career of a prosperous man, and the Hardware trade of the whole country will join me in wishing him a happy experience in the new duties that press upon him, and after that a long and quiet evening of life. WM. H. MAHER.

TOLEDO, OHIO.

S. D. KIMBARK COMPANY'S CATALOGUE.

S. D. KIMBARK COMPANY, 80-84 Michigan avenue, Chicago, Ill., issue an illustrated catalogue of more than 400 pages, containing new and desirable goods in each department, as well as old standard articles in iron and steel. Heavy and Carriage Hardware, Wood Materials, Carriage Trimmings, Blacksmiths' and Wagon Makers' Tools and Machines, &c. The company manufacture a line of high grade Bodies and Seats, including Piano Box Buggy Bodies, also Road Wagon, Spring Wagon, Surrey and Light Delivery Wagon Bodies. All manufacturers' standard lists in the catalogue are the latest, and are distinguished from other lists by a star. For the purpose of perpetuating the business of S. D. Kimbark, which was established in 1853, a corporation was formed on January 1, 1903, under the present name. The management of the business remains in the same hands as heretofore.

THE ATLANTIC CITY CONVENTIONS.

National Hardware Association.

American Hardware Manufacturers' Association

During Tuesday there were constant arrivals of delegates to one or the other of the great Hardware conventions now in session in Atlantic City. The officers and Executive Committees of both the National Hardware Association and the American Hardware Association spent a great part of the day in completing arrangements for the meetings, with a view of making the preparations so comprehensive and detailed as to secure the success of the gathering.

The opening session of the jobbers bore emphatic testimony to the representative character of the meeting. The manufacturers' association was present in force with a large attendance of its members, including many men whose names are widely known. The jobbers likewise had reason to congratulate themselves on the attendance of their members. There were also present an unusual number of ladies.

After the opening of the convention with the singing of "My Country, 'Tis of Thee," a brief address by President Kirk and a welcome of representatives of the Canadian Wholesale Hardware Association, the roll was called and the convention proceeded with its interesting programme. The president's annual address and the report of the secretary-treasurer were listened to with close attention and elicited hearty applause. They are given elsewhere.

The representatives of the National Retail Hardware Dealers' Association, who were present by invitation, were given a prominent place in the programme and their addresses listened to with great interest. M. L. Corey spoke clearly and forcibly in regard to catalogue house business, and his position seemed to meet the hearty approval of the meeting. W. P. Bogardus, president of the National Retail Hardware Association, was greeted with hearty applause, and spoke as follows:

Address of W. P. Bogardus.

It has seemed to be an ideal condition when men whose business interests are so interwoven as those of manufacturers, jobbers and retailers of Hardware can get together and talk over their business affairs. I have felt that a better understanding between the different branches of business can be established by conferences, that face to face talks will result in greater mutual confidence. The result of the conference held last May in Philadelphia has strengthened my belief, and when the invitation came to the president and secretary of the National Retail Hardware Dealers' Association to meet you here and discuss further some questions that seemed important to us, and about which it seemed we should have a common opinion, my hesitancy to appear before so notable a gathering of manufacturers and merchants, many of whom have world-wide reputations, and all of whom have helped to establish the commercial supremacy of our common country—I say, my hesitancy was driven away by the hope that further good may be accomplished by this conference.

THE INIQUITOUS PARCELS POST BILL.

There seems to be a feeling on the part of some that the Government was organized to look after their private affairs and take care of them. To this end propositions are continually being brought to the attention of Congress, and action urged upon ill-digested measures. And the result is a great accumulation of special legislation that is unjust and unfair to the general public. Our attention is being called at the present time to a bill that is to be introduced in Congress at the coming session, and if possible passed into a law. This bill is called a Parcels Post bill, and the purpose of it is to have the Government carry as merchandise all sorts of goods in the mails. One paper advocating the bill lays particular stress on the idea that one can get his vegetables fresh every morning by mail. The bill further proposes that the Government shall insure the safe delivery of goods up to the amount of $10 without the sender declaring any value. When he declares a value then the Government will pay

the sender the full value of his shipment up to $25 on proof that goods were damaged or lost through fault of the Government. All this work is to be done by the Government for 1 cent on packages of less than 3 ounces, 2 cents for packages over 3 ounces and up to 6 ounces, 5 cents for a pound, and for every additional pound 2 cents, up to the limit of 11 pounds. No package shall be over 3½ feet long, nor occupy more than 2 cubic feet.

This bill evidently is not original with the man who drew it. It might with perfect propriety be called an Anglomaniac, for it is not to the manor born but it is an importation from a paternal government, brought here with evident intention of trying to graft it in a democracy. The effort should be a failure because it is legislation for the few at the expense of the many. This is a government of the people, for the people and by the people, and we have no use for paternalism in this country. The Post Office Department is weighed down at the present time wth a burden that results in an annual deficit running into millions of dollars. This deficit is brought about year after year as a result of special legislation. The rate on second-class matter is 1 cent per pound. The actual cost to the Government for handling and transporting second-class matter is 7 cents per pound, so that on every pound of second-class matter sent through the mails the Government loses 6 cents. If second-class matter was confined to the limits prescribed by the statute, even if there

W. P. BOGARDUS.

continued to be loss on account of it, no one would raise any objection. The universal reading of the newspaper and magazine by the people of this country is one of the most hopeful signs of the times. It means education. It means a broader view on all subjects. It means that the American people think. To many the newspaper and magazine constitute their entire library. I would not under any circumstances deprive them of their paper and magazine. Now with the fact of this continued deficit staring us in the face it is proposed that third and fourth class matter be consolidated into one class, and under the name of merchandise be sent through the mails at an actual loss of from 2 to 5 cents on every pound so shipped.

Who is going to pay this loss, and how long will the public stand it? At present the loss on second-class matter is partially made up by the excessive charge of 2 cents on letters. When the business men of the country presented a petition for a reduction of letter postage to 1 cent the Postmaster-General said it could not be done because the Government could not afford it. So you see that every one who writes a letter helps to overcome the shortage occasioned by the rates on second-class matter. Shall we extend this losing rate to other classes? Who will be benefited by it?

There are certain houses who rely for their success in business on their ability to get their catalogues into the hands of as many people as possible. At present it costs 32 cents to send out a 4-pound catalogue. Under the proposed measure it would cost 11 cents. At present the catalogue bears the burden of transportation. Under the proposed bill the Government would have a very large share of the expense of transportation to pay. Why should this be asked of the Government? One of the peculiar conditions that has arisen under the handling of second-class matter is referred to in the last available report of the Postmaster-General. A certain publication sent through the mails cost the Government for each issue $11.184 for transportation, and for handling an additional $4.473, making a total of $15.657. For this the Government receives in postage $2.236, leaving a balance of loss to the Government of $13.420. There are 112 tons sent out at each issue. It costs the publishers $4.473 for the paper and an additional $2.864 for the expenses of getting out the publication, making a total of $7.337. So, you see, the Government pays out $6.083 more than the publisher to get the publication in the hands of the reader, and the most astonishing fact in connection with this remarkable transaction is that in the opinion of the Post Office Department there is not one genuine subscriber for any of the 112 tons.

It is to the interest of every legitimate publisher to join hands in building up a sentiment against any such misuse of the postal facilities, especially when the fact is developed that this publication is not devoted to the spread of information of a public character, takes no interest in the future, the sciences, arts or any special subject. It is just advertising. If this was the only case it would not have the force that it does, but it is one of a very large number, and if it does not serve to warn us, the time will come when an angry public will arise in its wrath and strike indiscriminately at the postal rate that is now so much perverted by illegitimate publications.

ENGLISH PARCELS POST.

The English parcels post is held up as a shining example of what we should do in this country. But the example fails utterly when we remember that the average haul of parcels and letters in England is 40 miles, while here it is 442 miles. The railways of England, Ireland and Wales are 21,885 miles long, and carry annually 1,142,000,000 passengers. The railways of the United States are 200,000 miles long, and they carry annually 600,000,000 passengers.

The mail routes of England are 40,300 miles. The mail routes of the United States are 507,774 miles. The price in England is 2 cents for the first pound and 1 cent for each additional pound up to the limit of 12 pounds. If it costs 1 cent to carry a pound in England 40 miles, can you with any degree of reason say that 2 cents is enough to carry a parcel in this country 442 miles? The reference to the English parcels post is unfortunate, for the reason that its continuance has resulted in a breaking down of the transportation facilities of that country. When a business depends on its ability to wreck others and cannot succeed until it has torn some other business down it has very few redeeming qualities. In the prospectus of the Parcels Post League we read that "Barrels of flour and sacks of grain can be carried to better advantage to the public under the Post Office and a low uniform rate." The League seems to base its arguments on the proposition that if the Government can carry second-class matter for 1 cent per pound, why can it not carry merchandise at a 2-cent rate? Perhaps it could, but when the fact that the Government is losing 6 cents on every pound of second-class matter is remembered, it would seem very unbusinesslike for the Government to experiment further in that direction.

At the conclusion of Mr. Bogardus' address it was, on motion, resolved that a copy of it be sent to every Senator and Representative in Congress, and to all the members of the jobbers' and manufacturers' associations.

WEDNESDAY AFTERNOON.

In the afternoon an executive session was held at which reports of the different committees of the association—Executive, Membership, Transportation, Grievance, Press, Metal, Heavy Hardware, Entertainment—were presented. At the conclusion of this session those members interested in Heavy Hardware and Metals held special meetings.

On Thursday morning at an executive session the committee reports, as read on Wednesday afternoon, will be given special consideration, together with some miscellaneous business. The afternoon will be spent at the meeting of the Manufacturers' Association, as referred to elsewhere.

Friday will be occupied with three sessions, the morning session discussing special committee reports and electing officers for 1904. At the first afternoon session the seat of the next convention will be chosen, and consideration given to matters of a miscellaneous character. At four o'clock the doors will be opened, and the new officers will be installed in presence of all the attendants at the two conventions. In the evening will take place the sumptuous banquet tendered by the American Hardware Manufacturers' Association to the National Hardware Association.

President Kirk's Annual Address.

A year has passed since our meeting in New Orleans, and throughout these 12 months we have carried very pleasant memories indeed of that delightful meeting—delightful not only in enjoying the charming hospitality of the Queen City of the South, but delightful also in the spirit of harmony and co-operation which animated that convention during its sessions, and which has since followed us.

In my address at the opening of the New Orleans convention reference was made to the five years of remarkable prosperity which had been enjoyed, and also to the reasonable expectation that, sooner or later, days, and probably years, would follow when the sun would not shine so bright and the clouds would lower. It was our expressed belief then, however, that, while lower levels of prices in the order of events might be expected, great changes at an early day were not probable, and that steady markets generally might reasonably be expected for the larger part of the following year.

Although we have seen during the past year a most remarkable depreciation on the stock markets, one that in the magnitude of the interests involved, as well as in the wide scale of fluctuations, has perhaps never been equaled, yet our great manufacturing and commercial interests have gone steadily along.

SPECULATION AND INFLATION

had run their maddening pace and the day of reckoning came, but the channels of legitimate business have not been greatly disturbed. There has been a slight decrease in the demand for certain heavy iron products, and in these lines there has been left the choice of lower and perhaps unprofitable competitive prices or of restricted production, but the great wheels of industry generally have been kept in motion and the business energies of the country, while affected to some extent sympathetically, are still actively and profitably employed.

Aside from speculation there have been also other harmful influences that have come in and have interfered largely with the regular currents of business.

AMONG THESE BANEFUL FACTORS

it is safe to say that labor troubles have done more to disturb and impede the progress of the country in material improvement during the past year than all other causes combined. This condition of things is greatly to be deplored, and in our opinion the time has come when the business interests of the country must necessarily take a more active part in efforts to prevent these great disturbances and the tremendous losses entailed by them. There is surely some practical way in which employer and employee, capital and labor, can be brought to work together for their mutual good, and that will render strikes and boycotts harmless and impossible.

At the New Orleans convention the evils resulting from the published prices of

CATALOGUE HOUSES

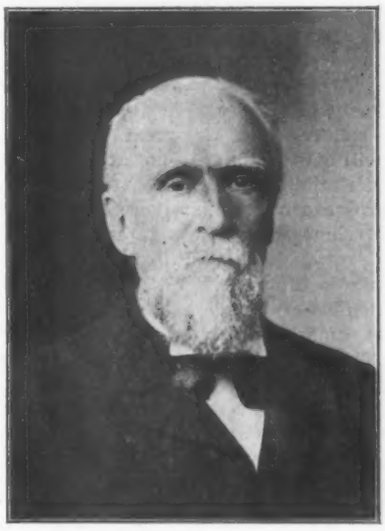
on certain standard goods were duly considered and action thereon was taken. Your officers and Executive Committee have given time and effort toward carrying out the object in view. In this work we are co-operating with the National Retail Hardware Dealers' Association, and have reached some degree of success. The trouble is, however, deep and far reaching, and much work and also time will be required to effect a cure.

Our members were pledged in that convention to assist the officers of our association in the prosecution of this work, and we trust that this pledge has been faithfully observed, and that you stand ready to-day to renew this pledge and to do all in your power to help remove this great evil.

In this connection we call your attention to the renewed effort that is now being made to induce Congress to pass the bill known as the

POSTAL PARCELS BILL.

This bill is directly in the interest of the mail order and catalogue houses, and its chief support comes necessarily



R. A. KIRK, President.

from them. We can readily see the powerful influence that is back of this movement.

If this bill were to pass, we believe that the evils which the great body of retail and wholesale dealers of the country have already suffered from this most pernicious practice of the houses referred to would be small indeed when contrasted with those that would surely follow. The yearly deficit in the Post Office Department is already large, and it is rapidly increasing, and this deficit comes very largely from the fact that the Government is now carrying second and third class matter at from one-fourth to one-third the actual cost of its carriage. By the provision of this iniquitous bill a package of 11 pounds of merchandise would be carried for 25 cents. For this price this package of 11 pounds would be carried from New York or from the most distant point on the Atlantic Coast to San Francisco or any other Pacific Coast point, including Alaska, and the same price would carry it to Honolulu or Manila. Statistics show that the cost of handling mail matter in this country is now about 8 cents per pound. Advocates of this bill would ask the Government to sustain this tremendous loss, in the face of the present yearly deficit of many millions of dollars which the Government already suffers from carrying second and third class matter, under the present regulations.

Bear in mind also that this great additional burden to the Government would be taken on expressly for the purpose of carrying articles of merchandise. The public is doubtless willing, if need be, to submit to some loss in the carriage of newspapers and periodicals, on the ground

of the educational advantages thus given to the people. But for the Government to become a carrier of merchandise and to undertake to handle vast quantities at from one-fourth to one-third of the actual cost incurred seems to us such a stupendous piece of folly as to tax our credulity regarding the possibility of such a bill becoming a law.

First-class mail matter now substantially pays its way, and if the Treasury at some time in the future shall be in condition to bear a larger deficiency than it now carries from the Post Office Department, let us have 1-cent postage on first-class matter, and thus help the general public, and at the same time not have the Government lend itself to be the tool of large interests that are working for their own selfish ends. Action in this direction by Congress at the proper time in the future, we believe, will meet with the hearty approval of the people. I trust that, in view of the strong efforts that are now being made in behalf of this bill, this convention will take such action on the subject as it may deem proper.

As we come to the close of the year

THE PROSPECTS FOR THE COMING YEAR

deeply concern us, and the cry of the prophet of old, "Watchman, what of the night?" is often on our lips. It is the constantly recurring thought that comes to us year by year, as we face new conditions and new problems. There is a readjustment of prices now going on in a few lines of Heavy Hardware. In this process of adjustment it is believed that the great body of articles of Hardware will not be affected—not at least until manufacturers can materially reduce the cost of such goods. We can therefore readily see that there is no ground to expect radical changes in prices in most lines of Hardware.

As we take in the outlook to-day and fully appreciate the difficulties before us, we also see the many evidences of favorable conditions ahead that cheer us on to fresh endeavor. The general conditions of business are good, and the signs of the times certainly indicate that, over and above anything that tends to discouragement, there is much more to give us an abiding faith in the future for him who steadily works on and plans and bides his time.

In my address at our last convention I gave as the strongest ground for our confidence in the new year the prosperous condition of the American farmer. We are able to say that this condition still continues. Droughts, floods and destructive insects and other misfortunes have prevailed in certain sections, but still our great farming communities are fairly prosperous.

In the final analysis we all come at last to the farmer for our support, and so long as he is able to get a reasonable compensation for his labor the business interests of the country will not permanently suffer, and so long as speculation does not run wild and labor organizations shall free themselves from dangerous and lawless leaders and counsels, and so long as the Lord of Harvests shall continue to crown the work of the tiller of the soil with His blessing throughout our vast and wonderfully productive country, so long we may expect our people to come up to our yearly conventions with satisfaction and thanksgiving.

IN MEMORIAM.

Since our last meeting the following named members have departed this life:

Charles G. Dennison of Sidney Shepard & Co. of Buffalo, N. Y., and C. Sidney Shepard & Co. of Chicago, Ill., died March 17. Mr. Dennison was devoted to the interests of his house, and so constant was he in his labors in the extension of its interests that his health broke down under the strain. Mr. Dennison was recognized as one who was a loving husband and father, and a genial friend and associate.

Charles Wesley Hackett of Hackett-Walther, Gates Company, St. Paul, Minn., died March 21. Mr. Hackett was in his seventy-second year. He was a faithful soldier for his country, and a strong advocate of the principles of the National Hardware Association. He attended several of its conventions, and endeared himself to all with whom he came in contact. He was successful in business, and was a man of high Christian character.

Edward P. Beals died April 9. Mr. Beals was senior member of Beals & Co., Buffalo, N. Y., and had been identified with the Hardware business 57 years. His life was full of good deeds, and during his long and successful career no one could ever ascribe to him other than honorable transactions.

John Tredway, treasurer of A. Tredway & Sons Hardware Company, Dubuque, Iowa, died April 13. A man of only 40, he was removed from a loving family and business associates to whom he had much endeared himself. He left an unsullied name.

James G. Forsyth of Sidney Shepard & Co., Buffalo, N. Y., died May 10. Mr. Forsyth was in ripe old age, having reached the age of 71 years, and had been faithful to commercial interests from early in his life, and was looked upon as one who had done much for the improvement of the city of Buffalo.

Samuel B. Hubbard, president of the S. B. Hubbard Company, Jacksonville, Fla., died June 21. He had reached three score years and ten, and had identified himself with the growth and development of the city of Jacksonville since 1866. He was one of the most progressive business men of that city, occupying positions of honor and responsibility in a large number of important enterprices.

Edwin C. Harwi, treasurer of the A. J. Harwi Hardware Company, Atchison, Kan., died September 4. He had been in the active Hardware business in Atchison for 26 years, and had the confidence and respect of the entire community.

It is with great pleasure that we meet the American Hardware Manufacturers' Association, now holding its third annual convention in this city, and whose members honor us by their presence in this hour. We anticipate large benefits to both associations from these meetings, not only from thus coming to know each other better personally but also from our conferences on the many important subjects which mutually concern us.

Gentlemen of the National Hardware Association, let us see to it that these days which we shall pass together here shall be profitably employed. In them we have the opportunity to do much that will help us to make our business, in our respective houses, more pleasant and profitable. Let us come into these sessions to give as well as to get, and let us see that this convention shall be one that will go down in our lives with many golden memories.

Secretary-Treasurer Fernley's Annual Report.

To-day we come before you with an annual report for the ninth time, and we assure you that it becomes more difficult each year to treat in a document of this nature of the work performed in a manner which is in harmony with its importance.

It is more difficult to present in a condensed form than would be the case if it were not for the fact that we have been in almost daily correspondence during the year with the members of our association; indeed, owing to our constant communication with you, there does not seem to be a necessity to review the many details of which we have treated through this correspondence.

I assume that the members of our association, when assembled in convention, merely desire an outline of the character of work which has been pursued. The importance of the work is becoming more and more recognized by manufacturers and retailers, as well as by members of the organization.

SELLING POLICY.

Manufacturers of goods sold by the Hardware jobber seem pleased to know that there is an avenue through which they can obtain information as to the desires of their customers. Hence, in addition to voluminous inquiries through the mail and a large number of individual conferences, your secretary-treasurer is invited before almost every body of manufacturers coming together to arrange a selling policy. The responsibility on occasions of this kind is realized, and we always endeavor to present the interest of the jobber in such a way that the manufacturer will not feel that we arrogate to ourselves

the right to dictate to them, but rather, that our interests are so closely interwoven that one cannot suffer unless the other is affected.

Further, in coming before the manufacturers we never lose sight of the fact that they have difficulties of their own which sometimes are not fully appreciated by the jobber, and it is not always best for them to do all that the jobber feels should be done. We also have constantly before us the fact that certain firms are doing a small jobbing business who are not connected with this association, but who have rights and privileges which entitle them to recognition.

We feel that our position is much stronger with our manufacturing friends, because they recognize that we are absolutely fair in all requests which we make. We also have constantly before us, when conferring with manufacturers, the fact that the retail merchant of the country is also an important factor in the general scheme of distribution, and that under no circumstances is it right for us to propose any plan which is not in harmony with the best interests of this branch of the trade.

JOBBER TO RETAILER.

We have successfully demonstrated to the manufacturer that his goods can reach the hands of the retail merchant at a less price through the channel of the jobber than if the manufacturer were to attempt to distribute his own goods, and this fact is fully appreciated by the retail merchant, so that in all parts of the country the retailers are quite content to rely upon the jobbing houses competing for their business as a basis of supply, and, therefore, the retailers realize that it is of greatest importance to have close at hand an assortment of goods in large quantities from which immediate wants may be speedily supplied.

In the wholesale Hardware business there is no longer an inclination to argue on the necessity of the jobber. It is only necessary for the jobbing trade to endeavor to co-operate with the retail merchant in such a way as will cause a continuance of the present mutuality of interest.

During the past year we have been in very active co-operation with the

NATIONAL RETAIL HARDWARE DEALERS' ASSOCIATION,

which organization is composed of representatives from the various State Retail Hardware Dealers' Associations. Eighteen States are well organized, and all of them are now affiliated with the National organization. This association is officered by men of highest ability, who are doing their utmost to serve the interests of the retail merchants of the country. The policy of the National Hardware Association of the United States is thoroughly in harmony with that of the National Retail Hardware Dealers' Association; so very naturally we are working side by side for mutual interest. On May 18, 19 and 20 a conference was held between the Executive Committee of the National Retail Hardware Dealers' Association and our Executive Committee. This conference extended over a period of three days, and resulted in the formation of plans of work which we believe will eventuate in a marked improvement of present existing conditions.

One of the subjects discussed on that occasion was the Postal Parcels Bill, so-called, which provides for the carrying of merchandise in the mail at a very low rate, and to which retail dealers are strongly opposed. We hope our association will go on record as also opposing the passage of the measure, which is designed for this purpose. Truly, the retailer is between Scylla and Charybdis, and we can but express the hope that the National Hardware Association of the United States will be the Odysseus who will safely convey them past these menaces to their future welfare.

CORRESPONDENCE WITH SALESMEN.

During this year we have issued a large number of letters to the traveling salesmen connected with our membership, endeavoring to assist these most estimable men in their efforts,to conduct business according to the motto adopted by the first president of our association, which is, as you know, "We advocate and strongly urge the conducting of the wholesale Hardware business on a high standard of business methods." Our association in taking up this department of work realizes that in order to carry out to the fullest extent the object for which we were organized it is necessary to enlist the active support of upward of 3000 traveling salesmen in the employ of members of this association. The letters alluded to above have been sent out at frequent intervals, 3300 being distributed with each issue. These communications have in each instance been sent to the head of the sales department, and some very valuable replies have been received from the traveling salesmen. We propose to continue this branch of our work, and express the sincere hope that the salesmen connected with our membership will take a lively interest in the same.

LOCAL AND SECTIONAL ASSOCIATIONS.

It has been our pleasure during the year to visit a number of Hardware trade associations in various parts of the country. We feel that it is extremely important that these organizations should be supported even more strongly than at present, as there are many matters which

T. JAMES FERNLEY, Secretary-Treasurer.

can be adjusted through the good offices of the local and sectional organizations, which would not be feasible to regulate through the national organization.

We particularly commend to the jobbers of the South that most vigorous organization, the Southern Hardware Jobbers' Association; to the jobbers of the coast, the Pacific Coast Hardware and Metal Association; to those of the extreme Central West, the Missouri River Hardware Jobbers' Association; to those located in the State of Texas we commend the Texas Hardware Jobbers' Association; to those of New York State we urge and heartily commend the New York State Hardware Jobbers' Association, and to those of New England, the New England Hardware and Metal Association.

MEMBERSHIP.

The members of our association show continued interest in the affairs of the association. Letters have been answered where an answer has been called for; new business is constantly being placed in our hands for execution, and we are pleased to report that our roll shows practically the same number of members as in previous years. We have had an unusually large number of applicants for membership, some of which have been acted upon favorably, the others remaining on our waiting list. It is the policy of the committees determining the question of membership to extend the privileges to only such as in their judgment shall add strength to the organization.

PREMIUMS FOR ANTICIPATED PAYMENT.

We are very much pleased to advise you that our efforts with manufacturers who had abandoned the cash discount principle have been highly successful, so that at the present time few prominent manufacturers refuse to give the buyer who places funds in his hands within ten days of shipment a special discount or premium. We

believe that if it had not been for the efforts of this organization along this line during the past three years the cash discount would have been denied all classes of buyers. Several prominent manufacturers have yielded this point. During the past year their names have been mentioned through correspondence with our membership, and as they are to be present at the meeting when this report is read, we prefer not to mention their names, fearing they might be criticised by their competitors for being so slow to realize the justice of the position which this association assumed in the convention of 1899. Suffice it to say, they have successfully yielded to our request.

CLASSIFICATION OF THE TRADE.

We find that this branch of our work is meeting with increased favor, and that the retail merchants realize that we are aiding them. Before our association took up this work there was no avenue through which a manufacturer who desires to protect a retailer could obtain authentic information as to the character of business conducted by any house. As it is, at the present time, this branch of our work is given great prominence, and the manufacturers of the country are realizing that they can consult without any fear of their own name or the party submitted becoming public.

It is impossible, therefore, to give any adequate statement of the benefit accruing to our membership from this branch of our work, or even to the other officers of our association. They recognize the importance of such information being in the custody of the secretary and treasurer of the association, and I want publicly to state that at no time has any officer or member of our Executive Committee attempted in any way to obtain such information.

And now, for the ninth time, I want to thank the members of this association for the confidence which they have reposed in me. We recognize our shortcomings; if nature had endowed us with more ability you should have had the advantage of it. At all times we have been willing to do all we knew how, but unfortunately we realize that we have not had the ability which we should have liked. During the period we have held this position you have placed five of the most worthy and talented men connected with the association in the position of presidency of the same, and whether it was under the administration of him who has been declared the best organizer connected with the mercantile life in the last quarter of the nineteenth century, William W. Supplee, or under the guidance of that calm, cool, clear headed and conscientious Bishop, or the gentle and lovable Shapleigh, or the conservative and energetic Bindley, or, last but not least, under the administration of him who has the confidence, love and respect of every member of this association, R. A. Kirk, we have been guided and instructed by all of these in such a way as they believed would be to your best interests.

The past is a matter of record, and the future is not ours. We can but hope that this organization will complete the last year of its first decade in a manner which will reflect honor on not only its own members but lead to its continuation by all who are engaged in what we believe to be the most honorable calling—namely, the distribution of Hardware.

JOBBERS' ASSOCIATION AS VIEWED FROM AN OUTSIDE STANDPOINT.

BY CHARLES F. SMITH, LANDERS, FRARY & CLARK, NEW BRITAIN, CONN.

You ask me to speak of the National Jobbers' Association as it looks to an outsider. I confess I find it difficult to speak from that standpoint.

There rises in my mind a picture of this great Hardware trade in which we are all engaged. It is a trade the most ancient as it is the most powerful of all the trades of man. In this industrial age and in this the greatest of all industrial nations it stands supreme. Whether we look at the thousand articles man uses in his home, his buildings, his bridges, his railroads and vehicles that carry him by land, the palaces in which he crosses the sea and the armadas with which he protects his coasts, the instruments of his agriculture, the weapons of his battles or the monuments he raises to his own adornment and glory, there you shall find everywhere mightily embodied the work of the artificers of iron, of bronze and of steel.

In the background of this picture we see far off the myriads of miners digging out of the earth, here and beyond the sea, the materials of this great trade; then nearer, the hosts of men engaged in the manufacture of its cruder forms. We have a dim but vast vision of the numbers employed in the tributary trades, and more clearly, because near at hand, we see both that great industrial army which turns these cruder forms into finished products and those great mercantile organizations which distribute those products to the consumers.

Looking upon this picture and thinking alike of the splendid achievements and vast numbers of the men who, with their wives and children, depend for their living upon this great trade, we shall find it not only a majestic

JOHN C. KOCH, First Vice-President.

but a moving spectacle, one that touches the chords of human sympathy, so that we feel a common pride, a common interest, and a sense of that mutual relationship and dependence upon one another, which all unseen yet surely does unite every man in the Hardware trade, from the laborer in the mine to the merchant in his warehouse.

Holding these sentiments, you must see how difficult it is for me to consider myself as an outsider or to speak to you fittingly from that standpoint. The more I consider the matter the more strongly am I impressed with the intimacy of the relations that exist between the makers and the distributers of Hardware.

WE ARE PARTS OF ONE GREAT MACHINE,

and neither can be affected but that the other feels it. When the goods move freely out of your warehouses, then the wheels of our factories will be found turning busily. When your salesmen find orders difficult to get in Oregon and Texas and Maine, then the fires go out in the mills of Pittsburgh, the wheels stop turning in the factories of New England, and the struggle for existence grows harder in the countless homes of the workers. All these are truisms, you may say. So indeed they are, but it is well at times to consider the truisms. It would have been better for the country at large if in these last few years more thought had been given to the truisms and less to the "isms" that are not true. And be they truisms or not, I am sure I speak the thought of all Hardware manufacturers when I say that your failures are our failures, that your successes are our successes, and that we are so intimately connected in this great and complex business that in no true sense can we be

considered as outsiders. At any rate, holding such sentiments, you will hardly expect from me any hostile criticism of your association.

IT IS ALWAYS EASY TO CRITICISE.

For one man who tries to do something there are always a dozen others who could tell him how to do it better, but who somehow never do much better themselves. You, I think, know better than we do how far you have failed to realize your own expectations, just as we manufacturers realize our own shortcomings. It is, perhaps, more fitting, and at any rate a more pleasant duty, that we as manufacturers should bring to your councils, instead of criticisms, whatever we can of aid, of comfort, of appreciation and good cheer. We realize the difficulty of the task you have undertaken. We know from our own experience how difficult it is for even half a dozen rival manufacturers to legislate wisely, fairly and successfully for the governing of their own particular branch of industry. You have a much more difficult task. It is continental in size, for your organization covers a continent in its membership. Never, so far as I have read, has an attempt been made in any country, or in any business, to establish methods for conducting for the mutual advantages of its members an organization covering so vast a field, with a membership so numerous, with interests so diverse, dealing in such a varied line of goods or doing so great a volume of business. Your task, I repeat, is continental in size. Is it any wonder, then, that you move slowly? It is a great wonder that you have been able to move at all. That you have been able to hold your organization together all these years is itself an achievement to be proud of, and, moving along the broad lines which the conditions of your organization make necessary, you have certainly made progress that you and we are conscious of. I confess that I have not always taken this view, but I am sure that no manufacturer who considers fairly the size of your task and its difficulty can help feeling respect, sympathy and admiration for the effort you are making to carry on your work.

It is not my purpose to speak of what you have accomplished within your organization for the betterment of the jobbers of Hardware. What you have done you know better than we. I wish it were more. I hope it may be, for as I have said before, your success is ours. Let me give you this thought when you get despondent, if you ever do, because you have not been able to accomplish more, it is but fair to consider what would be the conditions in the Hardware jobbing trade

IF YOUR ORGANIZATION DID NOT EXIST

Contrasting that condition with what you now enjoy you will find, I am sure, reason enough in that alone to congratulate yourselves. For I hold that no body of men can get together year after year as you have done, working away together at the problems surrounding your business, without developing a mutual toleration, sympathy and co-operation, which by some alchemy which I will not attempt to explain, but which is to the credit of our poor human nature, is actually transmuted into dollars and cents on the right side of your balance sheets.

With this brief reference to what you have done for yourselves I pass to the consideration of what you have done for us, the manufacturers. You have made us welcome at your conventions. You have enabled us to meet in two or three days' time your members gathered from all ever the country. Some of you under ordinary circumstances we never should have met, certainly not all without months of time spent in traveling. The heads of the jobbing houses have met the heads of the manufacturing establishments, and the work of your buyers and our salesmen has been supplemented and made more effective by this acquaintance.

PROMOTION OF FRIENDLY FEELING.

Sometimes we know that our presence must have been inconvenient to you, but your courtesy has never made us conscious of the fact. And out of these acquaintances there has grown a feeling of friendliness that did not exist before—a mutual understanding of each other's difficulties that could have been reached in no other way. That mutual understanding and friendly feeling have been of great advantage to us. It has, I know, been of some advantage to you also. If you really for the moment want to consider us as outsiders and want our opinion of your organization we are all ready to say that if you have done nothing else your organization has a right to be called a success for that friendly feeling that it has infused into the relations between the jobber and the manufacturer.

I referred a moment ago to that alchemy which transmuted into gold the influences that arise from your association together as jobbers. I believe that in a similar way the influences that arise from the association at your conventions of manufacturers and jobbers are working for the substantial benefit of both parties. To disbelieve that is to doubt that the world is growing better or that men and associations do in the long run make some advance along the line of their finer feelings and more generous ideas.

MUTUAL APPRECIATION OF DIFFICULTIES.

I perceive a more frank appreciation by jobbers and manufacturers of the difficulties of each other's position. I notice a greater readiness on the part of the jobber to co-operate with the manufacturer—a livelier interest on the part of the manufacturer that the jober shall make a profit on his goods, an interest so lively at times that it takes the form of gentle coercion and forces the jobber to make money in spite of himself.

Now if I am right in thinking I see these tendencies—and I think I am—then by so much as you legislate to foster these tendencies, by so much will you hasten the process of getting the most substantial results out of these meetings.

A good deal of water has run under the bridges since your last convention, and many things have happened. Aladdin with his wonderful lamp and his hydraulic pump has disappeared. The world of business is disenchanted. We see things as they are, we know that the arithmetic of our boyhood was right after all—that $2+2$ actually do make 4 and not 11 or 8; that one dollar in gold and ten barrels of water mixed together do not make a fortune, but only just one dollar and such other value as the water has for drinking and household uses.

WE KNOW THERE IS NO SWIFT ROAD TO WEALTH THAT IS SAFE,

that the Napoleons of finance usually march through ruin and desolation to moral or financial St. Helenas, and pondering these things, we are going to be more contented to do business in the safe and conservative way that has given the Hardware trade such soundness and stability. But if the country has learned these things, it has lost something in the learning, and that loss, both of money and of confidence, may make it harder to do business for a while, and if it is for a while going to be harder to do business there is all the more reason for forbearance, patience and mutual co-operation and assistance between the jobber and manufacturer. The improvement of those relations has been one of the greatest results of your work. That you will continue to foster those relations we implicitly believe, and so we extend to you our congratulations on this the ninth conventon of your national association. We promise you our co-operation, and wish you long life and prosperity.

JOBBERS' ASSOCIATION AS VIEWED FROM AN OUTSIDE STANDPOINT.

BY FRANK B. DICKERSON, AMERICAN TIN PLATE COMPANY, NEW YORK.

You will appreciate the diffidence with which I, a guest of a jobbers' association, approach the subject assigned for discussion. The subject is so vast that it is hardly practicable to do it full justice in ten minutes or so, but perhaps we may discuss it at greater length another time. You recall the mother who went to the photographer to see about having pictures taken of her children, and to inquire whether there was sufficient daylight after school hours at this season of the year to have them taken. The photographer said there was and that he would be glad to take them any afternoon. She inquired the price and received the reply, $3 a dozen. She then said, "I have only eleven, I guess I had better

come next year." If you ask me, perhaps I will come next year.

A jobbers' association is a piece of human machinery by which certain results are obtained more readily than could otherwise be accomplished. In the investigation of a piece of machinery, we want to know the principle on which it is built, the details of the methods by which it works and then the results. Some people look only at the results without inquiring the principle by which they are obtained or the methods used to accomplish the work. Let us examine this piece of human machinery, glancing first at the principle on which it is founded, then at the methods used and finally at the results.

ALL COMMERCE IS FOUNDED ON GAIN

or profit, but gain may be developed along one of two lines —self love or selfishness. Self love cannot be eliminated from commercial affairs, but selfishness should not be allowed to dominate. Selfishness exalts the affairs of the individual above those of his fellow; self love permits that in seeking individual gain the rights of one's neighbors be not infringed or curtailed. The association is founded upon self love, not on selfishness. The association seeks the good of all, but not the good of one at another's expense. The association and its aims will not

FRANK R. DICKERSON.

appeal to a man whose nature is sefish, nor to him whose motto is greed. The member of the association will be one willing to-ordinate his own interests with those of his neighbors; one who recognizes that the rights of his peers are equal to his own.

Another contributing principle on which the association is founded is the

INCREASE OF POWER BY UNITED ACTION,

as against individual action. It is a case of "United we stand, divided we fall." Power is to be admired only when wisely administered, but the history of most all of the jobbers' associations is that the power which they wield has been used wisely, and especially is this true in the case of the National Hardware Association.

If the power be applied in favor of that which is honorable and for the best interests of the community, it is something which may well command our admiration, and therefore I find myself to be one of your admirers. That power can be manifested in two ways—by precept and by example; and as each individual contributes his part toward the whole association, so as the individual members of this association have taken the highest moral ground for their actions, in so far have their deeds tended to add luster to the honorable mention of the National Hardware Association.

While it is easier for most people to express noble thoughts than to act noble deeds, yet the fact that one is committed in the association to the honorable course there enunciated will give individual support to such a line of action as is for the highest good of all.

MERCANTILE HONOR.

I know that there has never been uttered from the platform in these conventions a single thought tending to dishonor or corruption, and it is impossible that any speaker would ever dare to insult the members of the association by any ignoble sentiment; but if in the future it might happen that disreputable sentiments should be uttered publicly from a platform of the jobbers' association, I am confident that such a speaker would be consigned to the ignominy which he would richly deserve.

The president of a university recently said, "Mercantile honor is not unknown, but it is relatively rarer than heretofore." I believe the learned gentleman is mistaken, and would have been nearer the mark had he said mercantile honor has never been rare in this country, but is relatively more frequent than heretofore, and the associations of merchants are responsible for a higher standard of commercial integrity than ever before.

Turning to the methods by which the machinery is moved, a manufacturer is not often eager to show a visitor all the details as to how this is accomplished. Similarly, these jobbers' associations do not permit the outsider a view of the inside workings, and therefore it is that you cannot expect an outsider to speak critically on this branch of the subject.

If we use the simile of the engine, we know that motive power is steam, gathered in the boiler; so in an association of merchants energy comes from the men, and those men are the officers of the association and those who act on the various committees. If they are wise and energetic, it will show in the success of the association and their enthusiasm will be communicated to the other members and thus insure a prosperous life to the association. For this reason the members of an association are careful in choosing their officers and the members of the standing committees, for upon them depends to a large extent the success of the organization.

If we examine a steam engine perhaps the most notable feature to the casual visitor is the fly wheel, that great, large, round wheel which apparently does nothing, but by which the engine is regulated; and so in this association we see a large, round body, apparently doing nothing, but regulating the whole, and we call that large, rotund body the secretary-treasurer. There is one difference, however, between the fly wheel of an engine and the secretary-treasurer of the jobbers' association—the fly wheel operates noiselessly, but the secretary-treasurer is never quiet.

We might continue to examine the interior workings of the jobbers' association, but for an outsider to attempt to go further might lead to dismal failure.

RESULTS.

Let us now turn to the results accomplished by this piece of human machinery, which is called a jobbers' association. We have noted the power of such an organization, and naturally the first expression of power is on the line of nature's first law, "self protection." So the power is exerted to protect the association and its members from any adverse action on the part of the outsider. It has helped the individual to a greater extent than he could help himself, and has compelled the outsider to respect the association and its individual members. Another result of power has been to correct abuses, some of long standing in the trade, and abuses which the individual member could not have corrected alone and unsupported.

As we thus in an association learn to know our fellow countryman better, we learn to like him better, and hence to love the country which has given to us both our lives. Patriotism is encouraged and becomes a living thing, so that the glorious emblem of our country arouses enthusiasm and our love, whether seen at home or abroad; therefore, the jobbers' association, without intention, perhaps, but none the less surely, tends to make patriots and also to make better citizens of us all. Meeting in the friendly spirit as the members do, each one learns that his competitor is better, perhaps, than he thought. He learns to respect the other man for what he is and not

for what he estimated him to be as a competitor. This friendly spirit is a wonderful power for good, and has a powerful influence in cementing the ties which bind us together.

No one can attend these meetings without making stronger the ties of friendship which already exist—without making new friends among those who formerly were mere acquaintances. Should the day come when that which we have so often seen in the past is to be repeated, when failures in business are not uncommon, I am sure

THESE ASSOCIATIONS WILL HAVE A SPLENDID INFLUENCE

on the mercantile community. Where there is an honest failure in business, or where misfortune has overtaken a firm, it is certain that many members of these associations will sympathize and a helping hand will be readily extended. But it is also absolutely certain that where chicanery and deceit have been practiced, such a guilty party will be "sent to Coventry" by the mem-

BRACE HAYDEN, Second Vice-President.

bers of these associations, and in such a way as to prevent a repetition of his evil deeds.

Another result of the jobbers' association is on the social side also, but I feel that any words I might utter would be but poor tribute to lovely woman, who graces by her presence these annual conventions. Where she comes she brings refinement, she brings peace and love and harmony. We love her and love to have her with us. Woman now has for years been taking her place in the commercial life, and it is only fitting that as she has some of the work, she should also have some of the joys. Whether they be our wives or our sweethearts, our mothers or our daughters, we welcome them to our midst. We are glad of woman's presence, for she diffuses a halo of grace and beauty around these meetings of the jobbers' association.

Officers and Committees.

Following are the officers and members of committees of the National Hardware Association:

PRESIDENT.

R. A. Kirk, Farwell, Ozmun, Kirk & Co., St. Paul.

FIRST VICE-PRESIDENT.

John C. Koch, John Pritzlaff Hardware Company, Milwaukee.

SECOND VICE-PRESIDENT.

Brace Hayden, Dunham, Carrigan & Hayden Company, San Francisco.

SECRETARY-TREASURER.

T. James Fernley, Philadelphia.

EXECUTIVE COMMITTEE.

Samuel A. Bigelow, Bigelow & Dowse Company, Boston.
P. E. Strauss, Fitz, Dana & Co., Boston.
J. D. Moore, Moore & Handley Hardware Company, Birmingham, Ala.
R. M. Dudley, Gray-Dudley Hardware Company, Nashville.
W. S. Wright, Wright & Wilhelmy Company, Omaha.
John Freeman, Freeman, Delamater & Co., Detroit.

ADVISORY BOARD (Composed of former presidents).

William W. Supplee, Supplee Hardware Company, Philadelphia.
H. H. Bishop, McIntosh Hardware Corporation, Cleveland.
John Bindley, Bindley Hardware Company, Pittsburgh.

MEMBERSHIP COMMITTEE.

A. D. Clinch, chairman, Underhill, Clinch & Co., New York.
A. C. Rulofson, Baker & Hamilton, San Francisco.
Col. John Conover, Richards & Conover Hardware Company, Kansas City, Mo.
George E. King, King Hardware Company, Atlanta, Ga.
William Chamberlain, Emery-Waterhouse Company, Portland, Maine.
F. A. Heitmann, F. W. Heitmann Company, Houston, Texas.
A. J. Bihler, Jas. C. Lindsay Hardware Company, Pittsburgh.

TRANSPORTATION COMMITTEE.

George B. Logan, chairman, Logan-Gregg Hardware Company, Pittsburgh.
Cortland Van Camp, Van Camp Hardware & Iron Company, Indianapolis.
George Tritch, Jr., George Tritch Hardware Company, Denver.
W. R. Wheeler, Holbrook, Merrill & Stetson, San Francisco.
H. L. Doten, Austin & Doten, Boston.
J. A. Warner, Wyeth Hardware & Mfg. Company, St. Joseph, Mo.
F. W. Hurty, Farwell, Ozmun, Kirk & Co., St. Paul.

ENTERTAINMENT COMMITTEE.

T. James Fernley, chairman, *ex-officio*, Philadelphia.
Col. B. F. Eshleman, Stauffer, Eshleman & Co., New Orleans.
Edmund W. Wunder, James M. Vance & Co., Philadelphia.
Hobart Weed, Weed & Co., Buffalo.
James S. Bonbright, Supplee Hardware Company, Philadelphia.
James H. Ritter, Biddle Hardware Company, Philadelphia.
John R. Griffith, Shields & Brother, Philadelphia.

GRIEVANCE COMMITTEE.

Wm. M. Glass, chairman, Lee-Glass-Andreesen Hardware Company, Omaha.
G. R. Vaughan, Barney-Cavanaugh Hardware Company, Mobile, Ala.
James R. Fones, Fones Bros. Hardware Company, Little Rock, Ark.
A. H. Decatur, Baldwin, Robbins & Co., Boston.
W. H. Robertson, Corbett, Failing & Robertson, Portland, Ore.
Felix Bahlmann, Kruse & Bahlmann Hardware Company, Cincinnati.
W. S. Donnan, W. S. Donnan Hardware Company, Richmond, Va.

PRESS COMMITTEE.

Geo. Braun, chairman, Bostwick, Braun & Co., Toledo, Ohio.
Capt. F. Barker, Barker, Rose & Clinton Company, Elmira, N. Y.
E. W. Morley, Morley Brothers, Saginaw, Mich.
George W. Herrick, Holder & Herrick, Boston, Mass.
A. B. Palmer, Palmer Hardware Company, Savannah, Ga.
W. H. Harwi, A. J. Harwi Hardware Company, Atchison, Kan.
O. L. Davis, Smith Brothers Hardware Company, Columbus, Ohio

FRATERNAL RELATIONS COMMITTEE.

A. L. Scott, chairman, Pacific Hardware & Steel Company, San Francisco.
Chas. H. Turner, Albany Hardware & Iron Company, Albany, N. Y.
H. F. Chorley, W. H. & G. W. Allen, Philadelphia.
C. A. Knapp, Knapp & Spencer Company, Sioux City, Iowa.
A. M. Wiley, Frye, Phipps & Co., Boston.
O. B. Barker, Barker-Jennings Hardware Company, Lynchburg, Va.
C. F. Bragg, N. H. Bragg & Son, Bangor, Maine.

METAL COMMITTEE.

A. J. McKee, chairman, Merchant & Co., Philadelphia.
Wm. T. Gummey, Gummey, McFarland & Co., Philadelphia.
H. W. Waite, Waite, Ranlet & Co., Boston.
Col. B. F. Eshleman, Stauffer, Eshleman & Co., New Orleans.
H. H. Rudd, Geo. Worthington Company, Cleveland.
J. P. Townley, Townley Metal & Hardware Company, Kansas City, Mo.
T. G. Walther, Hackett, Walther & Gates Hardware Company, St. Paul.

HEAVY HARDWARE COMMITTEE.

Col. R. S. Woodruff, chairman, C. S. Mersick & Co., New Haven.
A. C. Harvey, the A. C. Harvey Company, Boston.
Gen. C. Whitney Tillinghast, J. M. Warren & Co., Troy, N. Y.
John C. Koch, John Pritzlaff Hardware Company, Milwaukee.
Col. P. P. Beals, Beals & Co., Buffalo.
Irving D. Booth, Irving D. Booth, Elmira, N. Y.
D. H. Kane, Pacific Hardware & Steel Company, San Francisco.

American Hardware Manufacturers' Association.

The members of the American Hardware Manufacturers' Association occupied Wednesday morning in attendance at the initial session of the convention of the National Hardware Association, as noted elsewhere. In the afternoon at three o'clock they began their own convention in a session which was open to all manufacturers. After roll call, President Plumb delivered his annual address, as follows:

Presidential Address of Fayette R. Plumb.

I have the honor to bid you welcome to the fifth meeting and the second annual convention of the American Hardware Manufacturers' Association. Let me express the hope that your stay here will not only prove pleasant, but that the breezes wafted to us from the grand old ocean so close to our doors may bring balm and comfort to those of you who have become worn by the season's work, and that for this reason alone you may feel fully paid for your journey here. Our committee, I feel sure, had not only this in mind when they selected this place for our meeting, but they also felt that you would have more time to devote to association work, and that you would, therefore, endeavor to make this the most interesting meeting of any yet presided over by your president.

WHILE OUR ASSOCIATION IS PROSPEROUS

and we are all proud of our membership because of those associated with us, let me impress upon you the fact that you do not show the interest in its future that the management has the right to expect from you. You should not be contented until you have included in its membership every reputable Hardware manufacturer in the United States. In addition to this we should show more interest in the proceedings and endeavor by concerted action to prove that we are determined to win the approval and admiration of those who remain at home and make it easy for us to be here. There are so many abuses which might be overcome by earnest endeavor that I am surprised at the indifference shown.

FAYETTE R. PLUMB.

TRADE EVILS.

At every meeting I have alluded to some of the most objectionable evils presented since we became an important factor in the trade, and I think it proper to again bring them before you in order to freshen your memory in regard to the views expressed on the floor and the support extended at the time they were discussed. The chief of these evils are:

Cash discounts.
Contracts.
Special brands.
Contributions to catalogues.
Guaranteeing of prices.
Packing small orders for direct shipment without extra charge.
Deduction of cash discount from the gross instead of the net amount of the invoice.

All these subjects are interesting because they have a direct bearing on our profits.

SPECIAL BRANDS.

While I believe the abuses arising from cash discounts and contracts have been eliminated to a great extent, the evils arising from the manufacture of special brands are increasing rather than diminishing, and while I don't think it is possible to wipe them our entirely I do believe that they can be greatly curtailed if we are determined to make a record in our efforts to correct these abuses. It strikes me that the proper way would be to charge more than for factory brands. If cost is to be considered, we certainly should be justified in such action.

CATALOGUE CONTRIBUTIONS.

Although a resolution was passed at a previous meeting expressing our disapproval of the contribution to customers' catalogues, yet these abuses still continue. In fact, appeals for such assistance are increasing, and have become so great that it is imperative that a resolution be submitted at this meeting reaffirming in strong terms our former position on this subject; and do not let our action stop there, but let us hope that every member will make a firm resolution in every instance by firmly standing by the decision of the association. While I should not go so far as to refuse to furnish electrotypes to illustrate our goods, I believe I express the sentiment of the great majority of the association when I say we should not be expected to pay the cost of catalogues any more than to assume the other expenses of marketing our customers' wares.

The other subjects mentioned—namely, guaranteeing of prices, packing small orders for direct shipment, deduction of cash discount from the gross instead of the net amount of invoices—have not as yet received proper consideration. We have, therefore, plenty of work mapped out for us, and I sincerely hope our executive meetings will be well attended and that all will take part in the discussions. If you will do this we can accomplish something that will redound to our credit as long as our association lasts.

The proceedings at Saratoga were published in detail and are in possession of every member, and I hope all of you have taken the time to read them, especially the addresses of the invited guests.

TRADE BOYCOTTS.

It is not only a duty I owe to this convention, but a source of pride and pleasure, to call your particular attention to the able remarks of Daniel Davenport concerning boycotts and how they can be destroyed. There is no man in the country who has done more practical work in this direction than Mr. Davenport. Through his influence an association, known as the American Anti-Boycott Association, has been formed to fight this unlawful and tyrannical evil, and it should have the unqualified support of all manufacturers in every line. The work already accomplished has been far beyond the hopes of the most sanguine members and has been of incalculable value to every law abiding citizen in the United States. They have taken the ground that the boycott is a conspiracy created to deprive the manufacturer of the liberty bequeathed to him by those who founded our Government and is in violation of our laws, and in justification of this belief they have arrested and prosecuted the labor leaders who have attempted to enforce it. Those of you who have followed Mr. Davenport's work in Chicago during the strike last summer know of what great assistance he was to the manufacturers in that city. Scores of leaders were arrested and imprisoned, and public opinion was aroused to such an extent that the labor agitators were compelled to recall their action.

What we need are more leaders like Mr. Davenport, "who have no axes to grind" and can battle for our rights without fear or favor; those who will arouse public sentiment in our behalf and stand for what is right and just. The great majority of our citizens are in favor of fair play, and when they can be shown that we want nothing but justice they will flock to our support.

No manufacturer, I take it, objects to labor unions if conducted in a proper manner for the betterment of their members; but when they attempt to interfere with the right of an employer to discharge or employ whom he pleases they are performing an illegal act and there should be a way to punish them for it. Until this is accomplished labor troubles will constantly confront us and interfere greatly with our ambition to control the markets of the world.

It is inconceivable that labor should be so blind as to stand in its own light at a time when

CO-OPERATION BETWEEN EMPLOYERS AND EMPLOYEES

is not only essential to win our battles with other nations, but preserve and promote trade at home. The conditions at the present time are so diametrically opposite that the continuance of the present prosperity is threatened unless the labor leaders are shown their folly. The recent conviction and imprisonment of one of the most notorious of their schemers has cleared the atmosphere somewhat and prevented another disastrous strike among the iron workers.

ALABAMA ANTI-BOYCOTT LAW.

The State of Alabama has shown that her citizens are true Americans and believe in fair play by recently passing an anti-boycott law. This bill received a large vote and provided a fine of not less than $50 and not over $500 or imprisonment at hard labor for 60 days for persons convicted of boycotting, blacklisting, picketing and similar assaults upon the rights of individuals. As most of you may not have seen the account of it as published in the daily bulletin of the *Manufacturers' Record* I have thought it best to give you the text of the law, as follows:

Section 1. Be it enacted by the Legislature of Alabama that it shall be unlawful for two or more persons to conspire together for the purpose of preventing any person, persons, firm or corporation from carrying on any lawful business within the State of Alabama, or for the purpose of interfering with the same.

Sec. 2. That it shall be unlawful for any person or persons to go near to or loiter about the premises or place of business of any person, firm or corporation engaged in a lawful business, for the purpose of influencing or inducing others not to trade with, buy from, sell to or have business dealings with such person, firm or corporation, or to picket the works or place of business of such other person, firm or corporation, for the purpose of interfering with or injuring any lawful business or enterprise.

Sec. 3. That it shall be unlawful to print or circulate any notice of boycott, boycott cards, stickers, dodgers or unfair lists, publishing or declaring that a boycott or ban exists or has existed or is contemplated against any person, firm or corporation doing a lawful business, or publishing the name of any judicial officer or other public official upon any blacklist, unfair list or other similar list because of any lawful act or decision of such official.

Sec. 4. That it shall be unlawful to use force, threats or other means of intimidation to prevent any person from engaging in any lawful occupation at any place he or she sees fit.

Sec. 5. That it shall be unlawful for any person, firm or corporation to maintain a blacklist or to notify any other firm or corporation that any person has been blacklisted by such person, firm or corporation, or to use any other similar means to prevent such persons from receiving employment. Any person, firm or corporation violating any provision of this act must, on convection, pay a fine of not less than $50 nor more than $500, or be imprisoned not to exceed 60 days hard labor for the county.

That all laws and parts of laws in conflict with the provisions of this act be, and the same are, hereby repealed.

If every State of the Union would take similar action the walking delegates would be known no more and peace and prosperity would be ours.

SECTION COMMITTEES.

The question for us to decide to-day is, How are we going to grapple with all these questions that are before us? I firmly believe that our association can accomplish something to relieve the situation by forming section committees, as requested in my address in this city a year ago last summer. Let these committees, representing the different lines, get together at least once a month, discuss remedies to do away with the objectionable features of their business, with the understanding that the chairmen of the different committees are to meet with the Executive Committee of this association every three months. If such a plan is formulated at this convention I am convinced that something will come out of it, and that our next meeting will be full of interest. It will take time, thought and labor, but I am sure we are willing to accept these conditions if they promise success. With this thought in view the secretary has made a classification of the different trades. It may not be perfect, but it will undoubtedly be of some assistance to you. After you meet it may be necessary to make other divisions in order to bring the different trades closer together; if so, this can be easily arranged. The main thing is to make a start and try to help ourselves. Those who think they do not need help by taking part in your deliberations should attend to show the others why they are so prosperous. I am so much interested in this matter that I feel confident if you make a beginning now some of you may find it necessary to devote another day to the work. Saturday is a short day with the manufacturers, and it could not be put to better use than to devote it to committee work.

We are standing to-day at the "parting of the ways." One leads to anarchy, despotism, revolution and oblivion, and the other leads to self government, peace, prosperity and enlightenment. Which are we to take? It remains for us, as a nation, to decide. I do not fear the result; but we must be up and doing if we wish to save our country and our homes.

Mr. Plumb was followed by James L. Cowles, secretary of the New York Postal Progress League, who made an address, in which he outlined the aims of that organization. The annual report of Secretary-Treasurer F. D. Mitchell was then read.

F. D. MITCHELL, Secretary-Treasurer.

Reports of the Executive, Membership and Grievance committees followed.

Officers and Committees.

Following are the officers and the members of the different committees of the American Hardware Manufacturers' Association:

PRESIDENT.

Fayette R. Plumb, Fayette R. Plumb, Incorporated, Philadelphia, Pa.

VICE-PRESIDENTS.

F. S. Kretsinger, Iowa Farming Tool Company, Fort Madison, Iowa.
J. C. Birge, St. Louis Shovel Company, St. Louis, Mo.
George W. Corbin, Corbin Cabinet Lock Company, New Britain, Conn.

SECRETARY-TREASURER.

F. D. Mitchell, 482 Bourse Building, Philadelphia, Pa.

EXECUTIVE COMMITTEE.

C. W. Asbury, chairman, Enterprise Mfg. Company, Philadelphia, Pa.
Robert Garland, Garland Nut & Rivet Company, Pittsburgh, Pa.
N. A. Gladding, E. C. Atkins & Co., Indianapolis, Ind.
Frank L. Clark, Alabama Tube & Iron Company, Birmingham, Ala.
Henry B. Lupton, Oliver Iron & Steel Company, Pittsburgh, Pa.
W. S. McKinney, McKinney Mfg. Company, Allegheny, Pa.
H. C. Holt, the Lamson & Sessions Company, Cleveland, Ohio.
Geo. M. Landers, Landers, Frary & Clark, New Britain, Conn.

MEMBERSHIP COMMITTEE.

William H. Hays, chairman, Iron City Tool Works, Pittsburgh, Pa.
Geo. P. Hart, the Stanley Works, New Britain, Conn.
Edward Ingalls, the Atha Tool Company, Newark, N. J.
D. W. Simpson, Wilcox Mfg. Company, Aurora, Ill.
E. G. Buckwell, Cleveland Twist Drill Company, Cleveland, Ohio.
Gifford V. Lewis, Old Dominion Iron & Nail Works Company, Richmond, Va.

Tom Almgill, G. & H. Barnett Company, Philadelphia, Pa.
Edward Kemp, Wabash Screen Door Company, Chicago, Ill.
George H. Bishop, George H. Bishop & Co., Lawrenceburg, Ind.

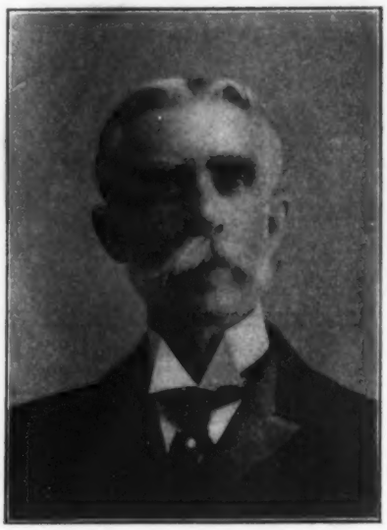
GRIEVANCE COMMITTEE.

Oliver Williams, chairman, Bryden Horse Shoe Company, Catasauqua, Pa.
Alfred W. Barnett, G. & H. Barnett Company, Philadelphia, Pa.
W. T. Norton, Norton Tool Company, West Park, Ohio.
George H. Harper, Clendenin Brothers, Baltimore, Md.
P. B. Noyes, Oneida Community, Limited, Kenwood, N. Y.

RECEPTION COMMITTEE.

Henry B. Lupton, chairman, Oliver Iron & Steel Company, Pittsburgh, Pa.
T. B. Coles, American Steel & Wire Company, New York City.
Tom Almgill, G. & H. Barnett Company, Philadelphia, Pa.
Fred. S. Merrick, Standard Horse Nail Company, New Brighton, Pa.
W. C. Reitz, Pittsburgh Steel Company, Pittsburgh, Pa.
F. W. Davis, Lake Erie Iron Company, Cleveland, Ohio.
Fred. I. Johnson, Iver Johnson's Arms & Cycle Works, Fitchburg, Mass.
George P. Hart, the Stanley Works, New Britain, Conn.
Edward Ingalls, the Atha Tool Company, Newark, N. J.
E. G. Buckwell, Cleveland Twist Drill Company, Cleveland, Ohio.
George A. Baird, Republic Iron & Steel Company, Chicago, Ill.
George M. Landers, Landers, Frary & Clark, New Britain, Conn.
Chalmers M. King, McKinney Mfg. Company, Allegheny, Pa.

On Thursday morning an executive session will be held, which will be open only to members of the association and their direct representatives. At this session



F. S. KRETSINGER, First Vice-President.

addresses will be made by the following gentlemen on the topics indicated: "What Are We Here For," Wm. M. Pratt, Greenfield, Mass.; "Transportation," by David H. Goodell, Antrim, N. H.; "Packing Small Orders for Direct Shipment—Should an Extra Charge be Made?" Edwin A. Walton, Cleveland, Ohio. Another executive session will be held on Thursday afternoon, which will be open only to members of the Manufacturers' Association and the National Hardware Association. The special feature of this session will be an address by W. S. Wright of the Wright-Wilhelmy Company, Omaha, Neb., on the subject, "Should Hardware Manufacturers Sell to Other Than Legitimate Hardware Jobbers." The paper will be followed by a general discussion of the subject by the members of both associations. The convention will be brought to a close on Friday forenoon, when officers will be chosen for the ensuing year.

What Are We Here For?

BY W. M. PRATT, GOODELL-PRATT COMPANY, GREENFIELD, MASS.

When our genial secretary invited me to address you upon this subject he was kind enough to inform me that the gentleman whom the Executive Committee desired to have deliver this address was unable to do so, and would I do it? If he felt that he was making a little party call, so to speak, on account of an accommodation of a similar nature extended to him in the past, and hoped he would not find me at home, he was very much mistaken; I fairly jumped for the bait. The subject which he had selected just suited me; I thought that I knew exactly how to handle it. I felt, as the whale said to Jonah, that it was "a good opening for a young man."

What are we here for is a good deal like Dave Harum's low bridge, we have all seen it. I remember having it pretty thoroughly impressed upon me when I first entered a commercial office, and was told in plain English what I was there for; it was impressed so thoroughly that the impression has always remained, and I have found from time to time when it has been necessary for me to break in young men who have had no previous experience in commercial life that to show it to them was not out of order. I therefore felt that it would be a pretty easy matter for me to take a few minutes of your time in explaining what I considered were the necessary prerequisites to the successful working of this organization what it should stand for and what it should not stand for, how it should court strength and avoid weakness, and how we could get the most out of our various gatherings.

Upon deliberation, however, I found it was an entirely different proposition from what I had imagined; we can neither invoke military discipline nor martial law, the services and attendance of our members must of necessity be entirely voluntary, it is not practicable even to draw an idealistic line and endeavor by persuasion to induce every member to toe it; and the more I attempted to get something that would be presentable and not bore you, instead of being reminded of the whale's remark to Jonah, I was rather more deeply impressed with Jonah's reply, that he felt "rather down in the mouth."

Before I had my ideas more than worked to a boiling point my most esteemed friend in the editorial department of *The Iron Age* comes along with an article that digests the whole subject, sort of pours off the heat, delivers the good iron, and about all I find left is slag, and I feel that perhaps I could do better justice to the members of this association by reading that editorial rather than by trying to improve upon it.

Association and organization seem to have become a present day necessity. By them and because of their being it is possible to draw together men and minds of vast and varied experience, make our association prismatic, and the concentrated brain power can be directed by our officials and made to stand as a menace to all evil practices and the champion of whatever is just and right. Let us stand

FOR PROGRESS AND AGAINST RETROGRESSION

by getting together and interchanging ideas we shall be able to see things as they are, to cope with conditions that exist, while the fantasies of our own imagination shall take their proper form and flit away. A single individual is like an old time flail, while a well directed organization is like a modern steam thrashing machine. The folly of attempting to flail out 1000 acres of wheat is too apparent to need discussion; it is equally presumptuous for an individual to attempt to correct trade abuses single handed or to endeavor to cope with modern trade conditions with meager knowledge acquired only through the narrow windows of his own individuality. The well worn ruts of the past must be abandoned; and as a municipality aroused by public sentiment finds it necessary to replace its rutty roads with asphalt pavements, so must our merchants and manufacturers who desire to keep abreast of the times displace antiquated methods and adopt those suited to prevalent conditions if they expect to attempt even to keep their place in the march of progress.

SELF INTEREST,

the strongest of all motives, has impelled us to organize because we believe organization to be beneficial. So far so good. We have also elected from our members a most efficient corps of officers, and they have performed their duties faithfully and well. We have had several meetings with considerable success and fair attendance, and let us consider the past well done.

I am reminded right here of a little story of a consulting physician, whose acquaintance I once enjoyed, and I was deeply impressed with his manner of handling what were apparently oftentimes delicate matters. After

having diagnosed the case to his satisfaction he would go into the family and say, "I think everything that your family physician has done up to now has been right, but from now on I would suggest trying something else." Without disturbing the past he was alive to the present and believed the future should be handled along different lines.

ACTIVE CO-OPERATION NECESSARY.

Now I think that this pretty nearly hits our case; we have done well up to the present point, but from now on I think we had better do a little different; neither our organization nor our officers can make this association what it should be unless they can have the active co-operation and assistance of a great majority of the members as well. We must both give and take. Those of us who "know it all" must be willing to take a little from the other fellow, while our quiet friends must surrender the right to hoard their ideas like uncut gems; they must bring them out from their hiding places that they may reflect their brilliancy for the general good. When we receive a notification of a forthcoming convention, with the notation that for further particulars we can see the programme inclosed, if it occurs to us as members that with the president's address and the reports of the officers and the various papers to be read, our responsibility ceases, and we have nothing more to do but let things take their own course, we must dispel that illusion.

W. M. PRATT.

There is a good deal of truth in the old adage, that we find about what we are looking for. If we come to our conventions looking for knowledge and ideas, we shall find both; if we come here simply to have a good time and say, "Hello, Bill," we shall find that also. But each and every one of us is vitally interested in the success of this organization. It can accomplish for every individual member what it would be impossible for an individual member to accomplish for himself. It can act as

A BUREAU OF EDUCATION

incidental to our business, and these bureaus of education ocupy much more than an incidental position.

What merchant, manufacturer or financier 100 years ago would have thought of installing in his business an analysis department, which would give him an insight into the detail of his affairs far beyond what general results would ever tell; that would tell him what articles were profitable as well as what customers; that would tell him not only what he was supposed to make upon each article, but what he actually did make; not only what percentage of general expense should be added to his factory costs, but just what proportion of this expense each article, or class of articles, should bear; that would tell him what machines should be added and what thrown out, and whether a State, county or town showed the annual net profit that it should. A bureau of education has at its command a concentrated brain power which is one of the greatest curative agents when applied to commercial disease.

FRIENDLY COMPETITORS.

The time has gone by when our competitors are to be looked upon as devils and be fought with fire. They belong to the same family that we do; they are as alive to their own best interests as we are to ours, and they are not in business for their health. The cutting and slashing and knifing which have been so prevalent in the past cannot be continued if prosperity is to remain permanent; a personal contact, a personal acquaintance with those engaged in a competitive business, or engaged in a business like or similar to our own, will do much to eliminate hard feeling and ill advised action and broaden our knowledge of men and affairs, and thereby equip us with the necessary wisdom wherewith to direct our own individual organizations.

It is a matter of considerable gratification for us to take note of the strength of our organization; it is composed of all, or nearly all, of the representative Hardware manufacturers of this country; it is equally gratifying to note that our members are represented by principals rather than subordinates. We have laid our foundation, and laid it well; let us go ahead and build upon it a structure which shall be a credit to itself and an honor to all its members. It will only be possible to do this by treating it as a business proposition and handling it in a business way.

SUBORDINATING ENTERTAINMENT FEATURES.

We do not desire to eliminate the entertainment features, but they must not be made paramount—"a place for everything and everything in its place." It is just as necessary to the success of our organization that our convention be made popular and hospitable as it is dangerous to allow the entertainment features to overshadow the real work which the association ought to and can perform.

DECEIVING JOBBING FRIENDS.

We are very fortunate in being able to meet at the same time and place with our jobbing friends; whether or no it would not be advisable to hold separate meetings occasionally is a matter open to discussion and one which will admit of argument both for and against, but a joint meeting and a joint convention is not without its dangers as well as its advantages. It is useless for us to come here and put on a false mask, spend our time in flattery and when we have returned home do things with an entirely different face; there is no use of our telling our jobbing friends one thing if we mean something else; they will think more of us and more of our organization if we tell them what we mean and stand up to it.

If we have a grievance, state it; don't put a cloak around it and cover it up with something else. This association cannot make for itself an enviable reputation if its members are going to come here and declare unanimously in favor of declining to allow cash discounts unless payments are made within ten days from date of invoice and then allow their customers to settle even after the bill is due and deduct the discount, to which they make no comment.

There is no use of our coming here and claiming that we will not allow contracts to be broken and then accepting contracts for a large quantity of goods and allowing our customers to take what they require and drop the balance; we might much better say what we think and do what we say we will do.

A MAN THAT IS FULL OF CARE

is usually careful. I believe that if this association has cares enough it will be careful to merit the success by good right expected of it. There is one care that I can only express by quoting from *The Iron Age* of October 15 last:

Care must be taken that the manufacturers' gathering does not become a mere adjunct to that of the jobbers, and have as its main object to curry their favor. The part taken by the Manufacturers' Association in providing entertainment for the jobbers is, if delicately done and not carried too far, a very pleasant feature,

although there are those connected with the Jobbers' Association who are disposed to consider it a little undignified to accept too many attentions of this character. The matter of entertainment, too, if overdone is apt to intrude too much on the time of the associations, whose sessions are liable to be interfered with by the counter, and sometimes the superior, attractions of too abundant hospitality. The manufacturers and their representatives, while standing in most cordial relations with the jobbers, should be careful to maintain a dignified attitude and refrain from any course of action or manner of expression which might suggest the graceless suspicion that their guests were the recipients of attention merely as present or prospective customers. There has sometimes been a disposition in the open session to indulge in exceedingly courteous, though meaningless, generalities when the relations between jobbers and manufacturers have been under consideration. It would be much better and more worthy of the dignified parties concerned if there were in the joint meetings frank and candid statements on the part of the manufacturers, even though such statements might sometimes run counter to the views and interests of some of the merchants addressed. The Manufacturers' Association is a sufficiently large and important body to make its own business its prime concern. If it neglects its opportunities and is content to regard itself as a tender to the Jobbers' Association—a course which the jobbers themselves would be prompt to condemn—it will fail first to merit and soon to receive the support of manufacturers who deem that a business organization should be conducted on business principles.

While it might be in better taste to take cognizance of the boy's request of his parson, "Say amen and sit down," after making this quotation, I believe that supplements to second editions are quite in order, and the question at once arises in my mind whether or not this association has any right as a whole to go very far into specific detail. What may be wise for one of us may not naturally be wise for the other fellow—even as Hardware manufacturers we cover a pretty broad field. What would be good policy and good business for one might prove exactly the contrary for somebody else, and as an organization bent on the general good we should avoid all class legislation. General subjects can be discussed *ad libitum;* specific detail should be handled with care. We can hardly expect an individual member to take a stand that he knows is against his own best interests. Let us bear in mind the old adage, "That in unity there is strength."

ASSOCIATION AS A BEACON LIGHT.

In closing I can only say that we are here as manufacturers, as members of our associaton, to attend the business sessions of our convention and lend a willing hand toward the discussion of such topics as are of mutual interest, each and every one of us from his standpoint, great or small, in order that from the broad knowledge thereby gleaned the association can stand for those principles and adopt those policies which shall do injury to none, do good to all, and which shall enable this organization to stand as a beacon light, disseminating its rays throughout the whole Hardware world, taking an active interest in all the happenings in that world, from the cradle to the grave—from the manufacturer to the consumer—championing the cause of right and justice wherever found, heralding the march of progress; an organization which shall be handed down as a legacy worth more than gold to those who are to come after us, and by it and because of it make possible for them a greater ratio of improvement. It is not necessary that we should go into specific detail as to how each and every one should run his business; it is not necessary that we should insist as members of this association that we are to be bound by certain specific rules and regulations. We do not come here to foster monopoly, to breed distrust, to create internal strife or idle away the hours which should be devoted to business affairs. We come here to take up matters of vital interest to manufacturers of Hardware and thrash them to the core, and from the incipient kindling that shall be lighted by the various speakers we shall start a fire of discussion that shall blaze with the ideas that have been too long hidden under a bushel, and after the fire has spent itself we shall find in the cold ashes that are left something more priceless than radium to guide us over many a dark and hidden way.

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FACTORY COST AND BUSINESS METHODS.

SELF-PROVING COST SYSTEM OF BRIDGEPORT BRASS COMPANY.

BY GUY P. MILLER.

The former articles having described the organization of the factory and some of the routine followed in connection with the recording and executing of orders, we describe in this issue the Register of Manufactured Articles, and explain methods of recording and aggregating costs.

Fourth Article.

THE REGISTER OF MANUFACTURED ARTICLES.

THE Register of Manufactured Articles is kept by the estimating clerk, and contains an accurate record of the tools, metal and labor operations for every article manufactured. Each article is given a number. Cards with lettered tabs are used where an article is com-

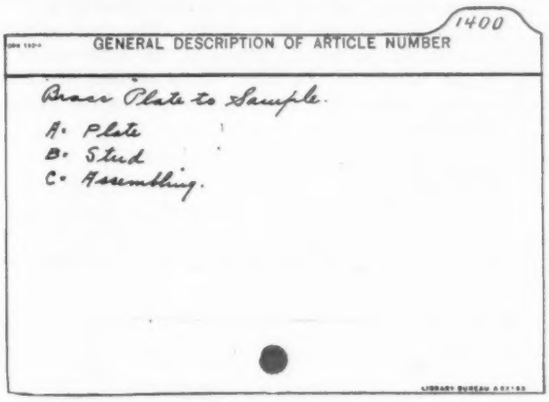


Fig. 27.—Card Index Register of Manufactured Article No. 1400. Size of Card, 4¼ by 6 Inches.

posed of several parts. An article composed of two parts, such as the one illustrated, would be given the next unused register number upon receipt of the order. Thus the complete article would appear as No. 1400, Fig. 27; the plate No. 1400-A, Fig. 28; the stud No. 1400-B, Fig. 29; assembling No. 1400-C, Fig. 30. The master card, Fig. 27, serves as an index where an article is composed of several parts. As all change in piece rate cards pass over the desk of the estimating clerk, it is made sure that the prices are the same as those which

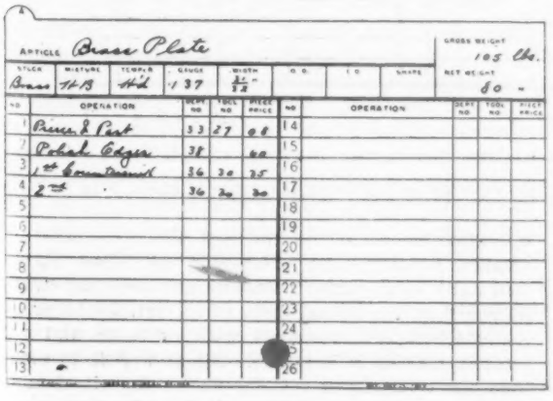

ARTICLE Brass Plate
GROSS WEIGHT 105 lbs.
NET WEIGHT 80 -
Brass | H/B | Hd | .137 | 1/2"
1 Piece & Part 33 27 .08
2 Polish Edges 38 .02
3 1st Countersink 36 30 .25
4 2nd " 36 30 .30

Fig. 28.—Card Index Register (1400 A) of One Part of Article. Size of Card, 4 by 6 Inches.

re paid. Each foreman has a copy of that part of the register which shows work performed in his department. s there is only one operation performed in Department 33 on the plate and none on the stud, the record on file in Department 33 would be as shown in Fig. 31. The operation, "polish edges," in Department 38 is given to show to what department the article should next be sent.

CHANGE FACTORY REGISTER.

The Change Factory Register, Fig. 32, is used to notify the superintendent and estimating clerk of any

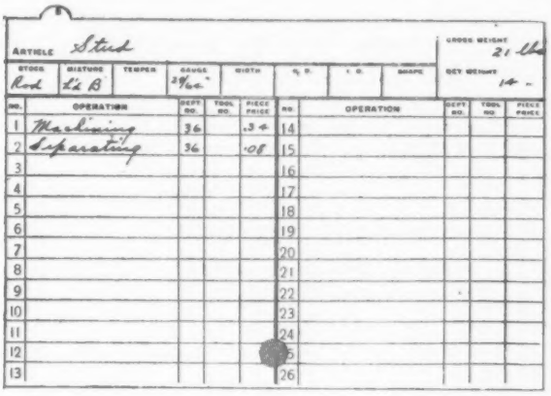


Fig. 29.—Card Index Register (1400 B) of Another Part of Article. Size of Card, 4 by 6 Inches.

change in method of manufacture, such as cutting out or adding an operation. As the register shows the exact method of making an article, and the routine through which it passes, changes in *personnel* cannot seriously

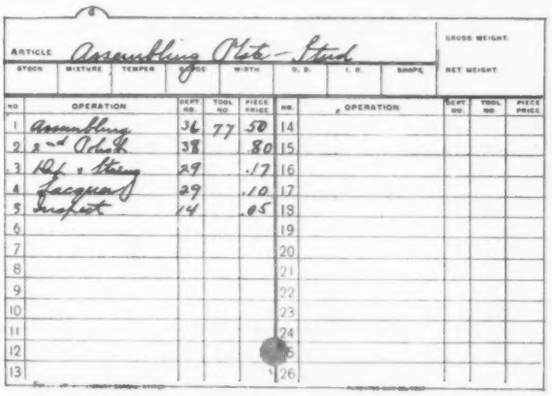

ARTICLE Assembling Plate - Stud
1 Assembling 36 77 .50
2 2nd Operation 38 .80
3 Rivet + Staking 29 .17
4 Lacquer 29 .10
5 Inspect 14 .05

Fig. 30.—Card Index Register (1400 C) of Another Part of Article. Size of Card, 4 by 6 Inches.

interfere with the business, as under the old fashioned way when such knowledge was locked up in the heads of a few people. The value of this register can hardly be overestimated.

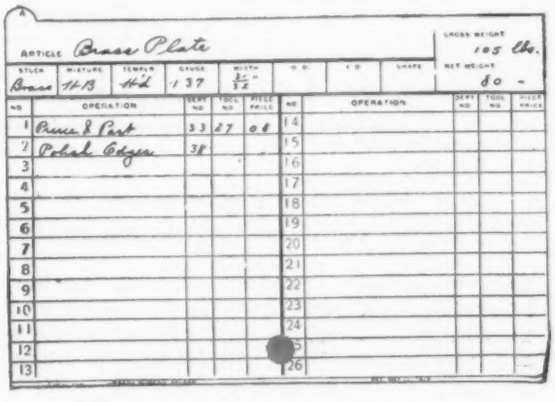
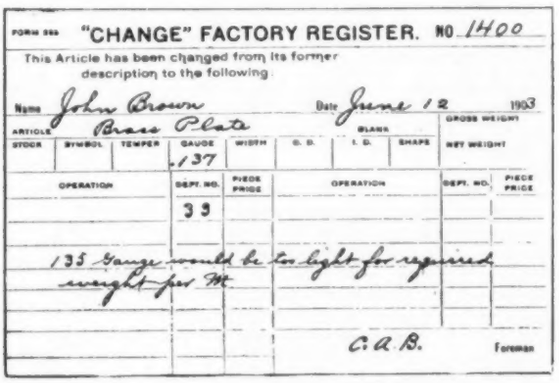


Fig. 31.—Card Index Register (1400 A), Showing Record on File in Department No. 33.

SYSTEM OF POSTING COSTS AGAINST ORDER NUMBERS.

Costs of manufactured articles are posted to order numbers composed of three series—production orders, standing orders and plant orders. All direct or pro-

ductive labor is charged on labor cards to the production orders, and indirect labor and supplies to standing and plant orders. Production orders are serially numbered, while standing order numbers remain the same. For instance, S. O. 521 always stand for repairs to machinery, but should it be desirable to know what a certain repair job cost, a plant order would be issued to the department performing the work, and all labor and supplies charged to that order number. Total charges to plant orders are transferred monthly to standing orders, and the total charges to standing orders by departments make up the factory expense, which is proportioned to the cost of direct labor.


"CHANGE" FACTORY REGISTER. NO 1400

This Article has been changed from its former description to the following

Name John Brown Date June 12 1903

ARTICLE Brass Plate

STOCK | SYMBOL | TEMPER | GAUGE .137 | WIDTH | O. D. | I. D. | SHAPE | BLANK | GROSS WEIGHT | NET WEIGHT

OPERATION	DEPT. NO.	PIECE PRICE	OPERATION	DEPT. NO.	PIECE PRICE
	33				

135 Gauge would be too light for required weight per M

C. A. B. Foreman

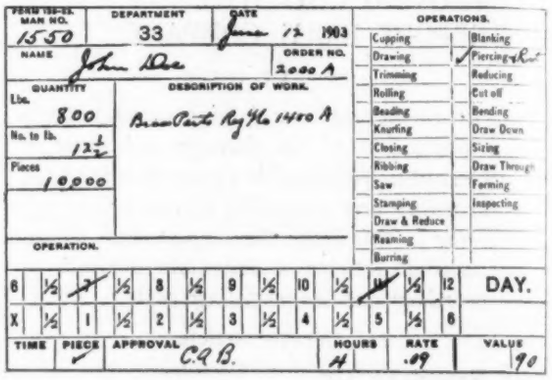
Fig. 32.—Change Factory Register Slip Notifying Superintendent and Estimating Clerk of Change in Method of Manufacture. Size of Slip, 4 by 6 Inches.

FORM OF LABOR CARDS.

The Direct Labor Cards, Fig. 33, are of different colors for various departments, in order to facilitate sorting. The workman fills in his name and number, checks the operation performed, crosses the time the job was commenced and the time finished, and returns the card with the work to the foreman's clerk, who records the weight and order number. The cards for each department are sent daily to the paymaster's department, where they are priced from piece rate cards, Fig. 23. The piece rate cards on their receipt from the superintendent's office are filed by register number, cards from each department being filed by themselves.

ARRANGEMENT AND USE OF COST ANALYSIS SHEET.

The Cost Analysis Sheet, Fig 34, is used for the accumulation of productive labor charges reported on the labor cards by the various manufacturing departments. These sheets are headed up by the order clerk in the superintendent's office, at the time he makes out the orders. One sheet is used for each part of an article, and the register number, or, if the article is one which has not been manufactured before, the estimate number, the operations, and the piece work prices, as shown by the register or estimate, are entered, as shown. The cost sheets are then sent to the cost department and postings are made to them daily from the labor cards. The clerk posting to the cost sheets checks the prices on the labor cards with the prices on the cost sheets. This system of checking insures the accuracy of the register and of the pricing of the labor cards.


FORM 158-33. MAN NO. 1550 | DEPARTMENT 33 | DATE June 12 1903

NAME John Doe | ORDER NO. 2000 A

QUANTITY: Lbs. 800; No. to lb. 12½; Pieces 10,000

DESCRIPTION OF WORK: Brass Parts Reg No 1400 A

OPERATIONS: Cupping, Blanking, Drawing, ✓ Piercing & Cut, Trimming, Reducing, Rolling, Cut off, Beading, Bending, Knurling, Draw Down, Closing, Sizing, Ribbing, Draw Through, Saw, Forming, Stamping, Inspecting, Draw & Reduce, Reaming, Burring

OPERATION.

6 ½ 7 ½ 8 ½ 9 ½ 10 ½ 11 ½ 12 DAY.

X ½ 1 ½ 2 ½ 3 ½ 4 ½ 5 ½ 6

TIME | PIECE ✓ | APPROVAL C.A.B. | HOURS 11 | RATE .09 | VALUE 90

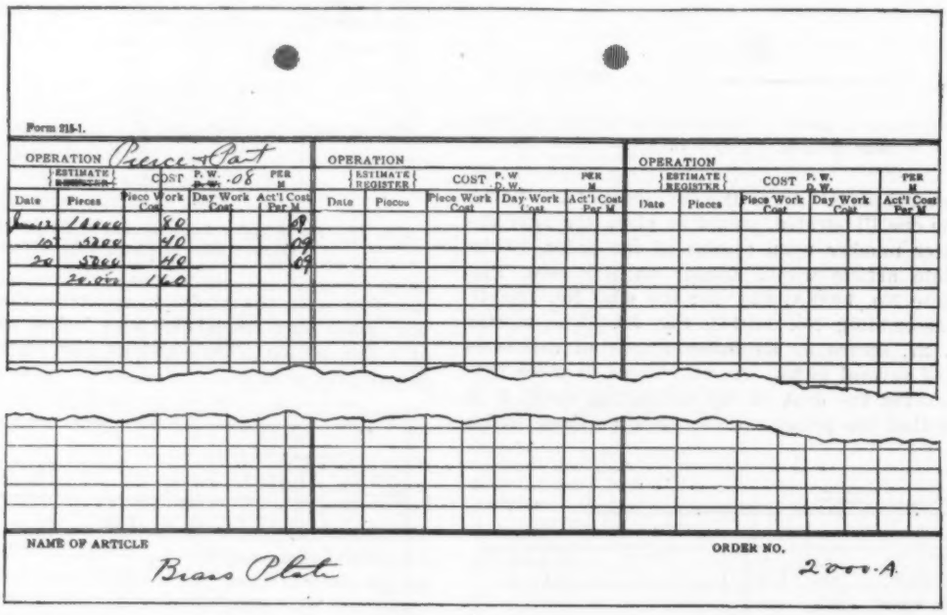
Fig. 33.—Direct Labor Card, Showing Workman's Time and Rate of Wages on One Part. Size of Slip, 4 by 6 Inches.

CHANGE FACTORY COST SLIP.

In every case where the cost clerk discovers any differences between the price on the cost sheets and on the labor cards, or where labor cards show charges for an operation not listed on the cost sheet, he makes out a Change Factory Cost Sheet, Fig. 35. These sheets are sent daily to the superintendent and keep him constantly informed of the actual costs of all articles in process of manufacture, as compared with estimate and register records, making it impossible for an article to cost more than the estimate or register shows that it should cost without his attention being called to the fact.

ADVANTAGES OF THIS SYSTEM.

By totaling the net loss column of the Change Factory Cost Sheets for a month, the excess cost over estimated cost of direct labor is obtained. This knowledge being


Form 215-1.

OPERATION Piece Part | ESTIMATE / REGISTER | COST P. W. .08 D. W. | PER M

Date	Pieces	Piece Work Cost	Day Work Cost	Act'l Cost Per M
June 12	10000	80		09
13	5200	40		09
20	5200	40		09
	20,000	160		

OPERATION | ESTIMATE / REGISTER | COST P. W. D. W. | PER M

Date	Pieces	Piece Work Cost	Day Work Cost	Act'l Cost Per M

OPERATION | ESTIMATE / REGISTER | COST P. W. D. W. | PER M

Date	Pieces	Piece Work Cost	Day Work Cost	Act'l Cost Per M

NAME OF ARTICLE Brass Plate ORDER NO. 2000-A

Fig. 34.—Cost Analysis Sheet, Bringing Together Productive Labor Charges on One Operation. Size of Sheet, 8 by 10 Inches.

transmitted by the superintendent to the foreman, then efficiency is greatly increased. A good foreman makes a record by getting work done for the price estimated or less, and knows that through this system he will receive the credit due him.

The next article will continue description of the company's Cost System, explaining the manner in which the various elements of cost are brought together.

BRITISH LETTER.

Offices of *The Iron Age*, HASTINGS HOUSE, NORFOLK ST., LONDON, W. C., November 7, 1903.

The Week's Hardware Trade.

THERE still continues to be a conspicuous absence of the activity and pressure usually characterizing the month of November in all the Hardware centers. There is a good deal of surplus unskilled labor throughout the Midlands and Sheffield, but as yet little absolute suffering or destitution. The percentage of unemployed in the well organized trades is comparatively small, but the labor supply is swollen by great numbers of agricultural workers, who have drifted into the towns and who seem likely to continue hovering round factories and workshops throughout the winter. This is largely due to the agricultural depression and the still flooded condition of large tracts of country, where ungathered crops are actually rotting. I have already pointed out that the heavy losses sustained by farmers and land owners naturally react upon the country ironmonger, and, of course, through him upon all classes of Midland jobbers and manufacturers. The building trades continue to be in an unsatisfactory condition. Master builders have met in various parts of the country and are seriously considering what would be the most tactical time to reduce wages.

The unfortunate season through which farmers have been passing has had a depressing effect on the sale of all kinds of implement and agricultural machinery, and consequently on the requirements of makers for cutting and other parts produced in Sheffield. The season has well set in for plough plates, and while orders are not heavy so far, a fair trade is anticipated. Surprise has again been expressed that notwithstanding the general use of mowing and reaping machines the sales of Scythes and Reapers keep up so well. With some houses they are as large as at any time in the past.

Orders for Sheep Shears are coming in very satisfactorily from South America for delivery next year. The South African trade, which practically runs all through the year, is improving very slowly, and is much below what it was before the war. The home demand has been remarkably good this season with houses that produce best qualities. In the File branch there is no pressure of orders, but most firms are fairly well employed. The Edge Tool trade keeps up remarkably well, and at some places there is more activity in that department than in any other. The orders are chiefly from the home and Continental markets.

The Copper working trades have benefited to some extent from the recent rise in the price of that metal, which has improved the value of stocks and prompted some speculative buying. Consumptive demand, however, for Copper Goods is restricted at present, though Copper Wire and Ribbon of high conductivity continue in brisk request for electrical purposes. For Iron and Steel Wire, the latter more especially, orders arrive on a fairly large scale, more particularly for Fencing, Wire Working, and Nail, Chain, Rivet and Screw making purposes.

British and American File Prices.

James Dickson, managing director of Henry Rossell & Co., Limited, the Sheffield Steel File manufacturers, considers that Great Britain should be protected against unfair competition, and as an instance of the kind of trading to which he objects mentions the fact that American File manufacturers offer in our markets half-round bastard 6-inch Files at 1 shilling 9 pence per dozen, net, while charging for the same goods in the United States the equivalent of 7 shillings 6 pence per dozen, net. Mr. Dickson thinks that, while they may be advantageous to certain individuals in this country, the disorganization of capital and labor, caused by what he designates "unfair competition," is in the long run disastrous. To this a reply is made by John George & Sons, Limited, who represent a leading brand of American Files in this country, who say:

The discrepancy between the prices obtained in the United States and in Britain, as pointed out by Mr. Dickson, is at first glance very great, and appears to be a case of unfair competition. But if Mr. Dickson, instead of selecting a 6-inch Half Round Bastard, had selected a 4½-inch Taper Saw File he would have found that the price at which the American manufacturer sells it in England is 1½ pence per dozen higher than that at which he sells it in his own country. In a case of an 8-inch Slim Taper Saw File the price obtained in England is nearly 1 shilling per dozen higher than that obtained in America. The discrepancy between the prices is entirely due to the different scales in the Sheffield and the American lists, and it is just as easy to pick out certain cases where the difference is in favor of the Americans as it is where it is in favor of the English. In the case of a general stock order of, say, 200 dozen assorted Files and Rasps, such as a wholesale ironmonger is in the habit of buying, the net result is practically the same whether

Form 316 **"CHANGE" FACTORY COST.** Order No. 7000-A

Name John Brown Date June 13-1903

Article Brass Plate

The cost of making this article has been increased / decreased as follows:

Dept.	Pieces	Operation	Est. or Reg. Cost per M.	Actual Cost per M.	Net Loss or Gain
33	10 M	Bending Part	.08 M	.09 M	.10

Signed

REPORT

It was necessary in order to get these parts out on time to do this operation on a slower machine than one taken into consideration in making estimate.

Signed C. A. B. Noted B. S. S. Supt.

Fig. 35.—Change Factory Cost Slip for Superintendent, Showing Change in Estimated Cost. Size of Sheet, 5 by 8 Inches.

they be bought at current English or American prices, although probably no two items will exactly agree. The Sheffield File list is admittedly not in proper proportion, which is apparent from the fact that very few Sheffield manufacturers allow the same discount from the whole list, but it is rather hard that American manufacturers should be accused of unfair competition because Sheffield makers choose to sell from a list which is not well graduated.

Ironmongers and Postal C. O. D.

The recent proposal that the post office should adopt a C. O. D. system has had the attention of the Ironmongers Federated Association. They have addressed a protest to the Postmaster-General. The objections to the system are thus summarized:

1. That it opens the door and gives facilities to a class of traders who live by advertising goods the values of which are grossly exaggerated, and which in many instances are an absolute fraud.
2. Under the proposals the recipient must part with his or her money before the goods are seen or verification can take place.
3. Should a fraud be perpetrated the senders would be missing and redress hopeless.
4. The proposals are encouraged by a class of traders operating in large cities through advertisements, and by obtaining orders in this way they rob the local tradesman of his livelihood.
5. The Central Board of our Federation respectfully submit that their members have large interests all over the country, and in each town and district pay heavy local rates. Why, then, should the post office give facilities for the stranger to come in and rob the local shopkeeper of the means of paying what the State and municipality demand of him in the shape of rates?
6. The public can only spend their money once, and the local tradesman, being the neighbor, has the first claim upon it.
7. Our Central Board urge the department, of which you are now the head, not to be led away by the support that a certain class of the press give to these proposals, as they live by the advertisements inserted in their papers, and so the interest they take in the parcel post cash on delivery scheme is a selfish one, for they know if it is carried through it must put large sums of money in their pockets.
8. As taxpayers we respectfully protest, because we are of opinion that it would involve a serious loss on the department over which you preside.
9. Lastly, our Federation, through their Central Board, would point out that as the law is practically impotent against fraudulent advertisements, no facilities whatever should be given by the Government to encourage a class of traders who live on the credulity of the public.

It will be seen that this is only another phase of the war which is now being perpetually waged between the small retailer and the growing catalogue house.

The State of the British Wire Trade.

The "fiscal inquiry," about which we have all heard so much, is at least useful, in so far as it lets us know the views of manufacturers upon their special industries. Every time Joseph Chamberlain speaks, he has a way of announcing the final disappearance of some British industry, his general argument being that to save the remainder we must impose a tariff, and then give preference to our Colonies. One of the latest of disappearing industries, according to the fiscal reformers, is the Wire trade. A Wire manufacturer has been interviewed who flatly denies that the Wire drawing trade has either "gone" or is "going." He is quite of opinion that the exact reverse is taking place, and that the Wire industry is healthier than ever. To Mr. Chamberlain's assertion at Liverpool that 25 years ago Warrington exported more Wire than the whole make of Germany, and that Germany now exports more than the whole make of England, he replies that this may or may not be true, but even if it is, it does not prove that protection is better than free trade. There are other reasons for the growth of German exports. In the first place, Wire is used much more largely now than it was a quarter of a century ago, and English manufacturers, many of whom have continued their old fashioned methods, have not been able to keep pace with the demand. Had they all kept their plants up to date he has no doubt that the industry would have been a much more important one than it is. But even as things are it would be absurd to represent it as a declining industry. His own particular firm have trebled their output during the last six years, and some years ago they started a new plant where, so far, at any rate, they have achieved more than a respectable success. As to other firms, he has never heard of a workshop having had to be closed through lack of work, either in Manchester or Warrington, though he knows several which have had to be enlarged.

But there is another reason why German exports should have increased which Mr. Chamberlain did not mention at Liverpool. It explains why this manufacturer and others engaged in his particular class of work not merely do not welcome Mr. Chamberlain's proposed changes, but regard them with apprehension. Wire is obtained primarily from basic steel billets. These billets are rolled into rods of a certain thickness in the rolling mills and then the rods are handed over to the Wire drawer. According to this manufacturer the bulk of the Wire exported from Germany to this country consists of rods rolled to the thickness of three-sixteenths of 1 inch —the point at which the rolling process ceases to be profitable—and these are just as much raw material to many a Wire drawer as cotton is to the spinner. He draws them to any gauge down to that of the finest needle. For some classes of work the German rod has an advantage over the English rod, because the ore from which it is made gives it a greater ductility than is found in English ore. This advantage is increased by its cheapness.

He is of opinion that there is very little "dumping" in the true sense—he does not think the Germans often sell their rods under the cost of production, but he admits that the German maker can often undersell his English competitor in the English market. This he attributes to superior methods and cheapness of labor in Germany, and also to the high rents and royalties which have to be paid on English ore. But it is impossible, he says, for the English rollers to supply the whole of the demand, and if they were to be protected then the Wire drawer proper would have a grievance. In that case the manufacturer of steel billets would also have to be protected. A large proportion of the rods rolled in this country are made from German billets; therefore the roller himself shares the advantages of free imports with the drawer. Again, some Wire drawers obtain Wire already half drawn from Germany, and manage to make a living, and sometimes (presumably under "the most favored nation" treatment which we enjoy) to beat the German finished product in foreign markets.

"How are you going to draw the line between what is and what is not raw material?" the manufacturer asked. "You see, it is all raw material to somebody. You might even say that the finished product is the raw material of the Bird Cage maker, and people of that kind. But is is certain that if we began protecting a good deal of the raw material used in the Wire drawing industry would not be regarded as raw material by the Tariff mongers. For that reason we Wire drawers don't want protection."

The American Advance in Japan.

The German press, in commenting recently on the Sewing Machine trade in Japan, points out that the importation of American sewing machines into Japan has increased elevenfold over that of Germany since 1893, although the American machines command much higher prices than those made in Germany. The reason for this is said to be the superior management of American companies in their business methods, such as establishing depots and agencies all over Japan, keeping branches where all parts of the machines can be obtained in the chief business centers, selling on the installment plan to private persons and sending salesmen to every town and village. If American Sewing Machines can be so successful in Japan, why should not the manufacturers of other American products follow suit?

To Test Building Material.

It has just been decided to hold the fourth international conference for testing building material next year at St. Petersburg, Russia. The exact date of the meeting has not yet been determined, but it will probably be held in the month of August, 1904. Herr Fetmager, professor of the technical high school at Vienna, Austria, has been chosen president of the conference, and

as vice-presidents Professor Martins of the University of Berlin and Prof. N. A. Belelinsky of the St. Petersburg Department of Public Works have been selected. American makers of building goods of one sort or another, who would gain by any tests likely to be imposed, should not fail to get into touch with this conference.

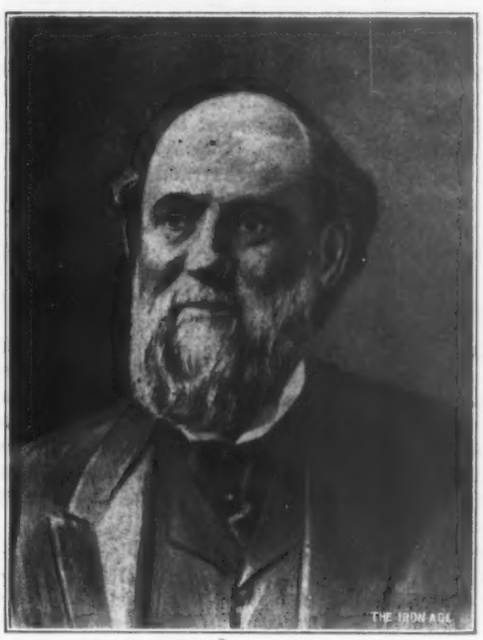
German Business in China.

It is stated with authority that all the German banks are calling in, at the end of the current year, the loans which they have made from time to time on account of German enterprises in China. During the last seven years no fewer than nine banks have embarked upon this class of business, in many cases creating special agencies for the purpose; but it has come to be recognized that the business is far from profitable and involves increasing risk with every year.

DEATH OF WILLIAM W. WILCOX.

WILLIAM WALTER WILCOX, founder and senior partner of Wilcox, Crittenden & Co., Middletown, Conn., manufacturers of Marine Hardware, died at his home in Middletown of heart trouble, November 10, aged 78. Mr. Wilcox had enjoyed excellent health through life until 1897, when he had a mild paralytic shock.

Mr. Wilcox was the only son of William Walter Wilcox and Mary P. Rand, and was born in Middletown, May 23, 1825. He was a descendant of John Wilcox (who



WILLIAM W. WILCOX.

was one of the original proprietors of the town of Hartford) and of John Wilcox, second (who was one of the earliest settlers of Middletown). Before the age of two he was left an orphan and his early life was spent with relatives in Portland. In 1847 he returned to Middletown and became interested in the manufacture of Brass Eyelets, &c., under the firm name of Penfield & Wilcox, which ten years later was changed to Wilcox & Hall. The business steadily increased, and in 1869 Mr. Wilcox formed the copartnership of Wilcox, Crittenden & Co., for the manufacture of a general line of Marine Hardware. He invented and patented several articles used in connection with vessels' equipment, and in 1885 he went abroad and succeeded in inducing the British Admiralty to adopt one of his inventions, the spur grommet, for use in the British Navy. In 1877 and 1879 he represented Middletown in the Legislature, and for the past 20 years had been a director of the Middletown National Bank. He was an attendant at the South Congregational Church and always contributed generously to its support.

One who knew him well pays the following tribute to Mr. Wilcox:

In the death of Mr. Wilcox, Middletown has lost a citizen whose life was distinguished by a high standard of public spirit, business enterprise and integrity and by many and generous benevolences. As the founder and senior member of Wilcox, Crittenden & Co. he was widely known and universally respected. Beginning in a small way he applied himself diligently to the interests of his business and by foresight and good judgment ultimately reached a front rank in mercantile circles. His management of the company until his retirement from active duty in 1891 was marked throughout by a high degree of ability, conscientious devotion and honorable dealing. Intuitively a gentleman, he worthily upheld the best traditions of the old school; was dignified and courtly in manner and at the same time so genial, sympathetic and kind that he won the love and esteem of all his associates and employees.

He married November 17, 1853, Miss Elizabeth S. Crittenden, who survives him, as well as one son, William Walter Wilcox, Jr., and a daughter, and five grandchildren.

THE RALPH BROWN COMPANY.

THE Ralph Brown Company of San Francisco are a new firm to enter the field for Pacific Coast business as manufacturers' agents. Ralph Brown has for over 18 years past been connected with Simmons Hardware Company of St. Louis, Mo., having entered their employ as an office boy, and up to the first part of this year, for nearly 15 years, continuously represented them in California and the Hawaiian Islands, with headquarters in San Francisco. Mr. Brown claims the distinction of having represented one house continuously a longer time than any other West Coast Hardware salesman, with but one exception. When he first went to San Francisco for the Simmons Company, Huntington-Hopkins Company, Carolan & Co. and Hawley Brothers Hardware Company were prominent in the Hardware trade; but they are all now out of existence, having been absorbed by other San Francisco Hardware jobbers. The new company will cover California, Washington, Oregon and Hawaii, and will represent in this territory the American Shear & Knife Company of Hotchkissville, Conn., makers of high grade Pocket Knives; the W. H. Compton Shear Company of Newark, N. J., who manufacture the Reliance brand of Shears, Scissors and Tinners' Snips; the H. J. Frost Company, New York, Fishing Tackle manufacturers; William A. Shull, Philadelphia, Razor Strops; James Smith & Son, Brooklyn, manufacturers of Dog Collars; the Central Stamping Company of New York, whose factories are in Newark; Keystone Lock Works, E. T. Fraim, proprietor, Lancaster, Pa., and other manufacturers in Hardware, Edge Tool and Cutlery lines. Since severing his connection with Simmons Hardware Company, on October 1, Mr. Brown has been in the East making his arrangements, but has now returned to San Francisco, and will have his new business venture in running order by January 1.

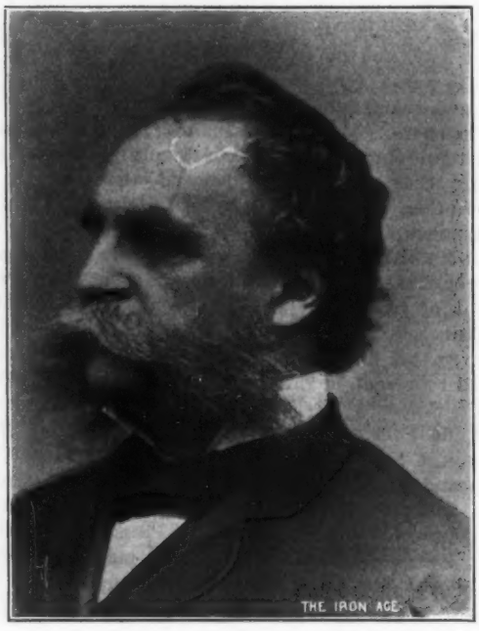
WESTERN WIRE GOODS COMPANY.

WESTERN WIRE GOODS COMPANY, corner Terrace and Commercial streets, Buffalo, N. Y., have been organized by C. K. Hutchins, who was for many years Western representative of the Wire Goods Company, Worcester, Mass. Adolph Giesecke, president and treasurer, is one of Buffalo's substantial business men, and Howard H. Baker, vice-president, is well known in the Hardware trade of that city. Mr. Dean, the superintendent, was formerly superintendent of the Kilbourne Wire Works of Troy, N. Y. Mr. Hutchins is secretary and general sales manager. The company will manufacture Bright Wire Goods, Brass Cup Hooks, Coat and Hat Hooks, General Kitchen Wire Goods, Corn Poppers and patented specialties. A catalogue representing the company's line will be ready in January.

THE J. S. KEMP MFG. COMPANY, Newark Valley, N. Y., who are building a three-story factory at Waterloo, Iowa, will handle all business in Iowa and surrounding territory from that point, discontinuing their Cedar Rapids (Iowa) branch.

GEORGE H. SARGENT'S SEVENTY-FIFTH BIRTHDAY.

THURSDAY EVENING, November 12, George H. Sargent of Sargent & Co. entertained the members of the Board of Governors of the Hardware Club at a banquet in the governors' room at the club in commemoration of the seventy-fifth anniversary of his birth. He had planned to have this function occur on the actual date, October 29, but a daughter in Philadelphia having arranged to honor him at that time with a family party, his original intentions were necessarily changed. In the meantime the members of the board, as individuals, unaware of Mr. Sargent's contemplated dinner to them, had arranged to present him on his seventy-fifth anniversary with a sterling silver loving cup, appropriately inscribed, as a token of their love and esteem. The cup, here reproduced, was sent to him at Philadelphia as a testimonial from his fellow governors, and presented to him at the family gathering alluded to. Mr. Sargent has long been one of the governors of the Hardware Club, and for two terms was its president, a position which he filled



GEORGE H. SARGENT.

with distinction and which revealed to his many business associates a genial and kindly nature, sometimes concealed under a brusque or dignified exterior. In addition to the governors, all of whom were present but two, who were unable to attend, a few guests, members of Mr. Sargent's business staff, were there, viz.: Thomas J. Atkins and W. J. Ladd, who have been with the house since March and September, 1856, respectively; George Munson, who went there in 1860; George F. Wiepert and John Sargent—17 in all. Alfred D. Clinch acted as toastmaster, he having, on behalf of Mr. Sargent, arranged the details of the gathering. The elegant table decorations and setting and the excellence of the dinner reflected much credit on E. Blanc, the club steward, who entered heartily into the spirit of the occasion. After dinner the toastmaster called upon R. R. Williams, who made an address in behalf of the governors, to which Mr. Sargent responded feelingly and felicitously. Other addresses were made by Messrs. Atkins, Ladd and Kennedy, after which the other guests were called upon by the toastmaster for remarks, and responded with interesting reminiscences and kindly personal tributes to the host of the evening. W. R. Walkley, one of the governors, who was unavoidably absent, contributed a poem, which was printed on the third leaf of the *menu*, which also contained a portrait of the host and a *fac-simile* of the cup. The following telegram, dated San Francisco, from Brace Hayden, who was unable to get there in time, was read as a toast: "Stalwart and sound in business principles, health and politics, may the echoes of the past be the reflection of future hopes without a discordant note, blending with perfect accord in the symmetry of a life

well spent." The occasion was a most enjoyable one and appropriately commemorated the seventy-fifth birthday of one of the leading merchants and manufacturers in the Hardware field.

TENTH ANNUAL SPORTSMEN'S SHOW.

THE tenth annual Sportsmen's Show, under the auspices of the Sportsmen's Exhibition Company, will be given at the Madison Square Garden, Friday, February 19, to Saturday, March 5, 1904, inclusive, Sundays excepted. The exhibit of Marine Launches, Marine Engines and Motors will be an important feature of the coming display. The arrangement this year by which increased water surface is to be provided, together with the privilege of putting launches and boats on the lake for purposes of demonstration, has favorably impressed the boat builders and is reflected in the increased amount of space already taken. The spaces for this class of exhibits will have on one side a promenade aisle with dock frontage, so to speak, on the lake. This will enable prospective buyers after a preliminary examination to step directly into a launch, boat, &c., for a practical water trial. Among the prominent exhibitors who have already secured space for this class of exhibits are the Lozier Motor Company, Geo. A. Strelinger Company, Truscott Boat Mfg. Company, Pierce Engine Company, Western Gas Engine Company, C. H. Blomstrom Motor Company, Electric Launch Company and Buffalo Gasoline Motor Company.

We are informed by the management that the entire exhibit this year is being planned and prepared upon a larger scale than ever before. The State of Maine is preparing a more elaborate exhibit this year than ever and the arrangements are in the hands of several natives of that State qualified for the work. A feature of it will be wild game animals, real trout, various kinds of birds of the forest, such as owls, hawks, &c., together with partridges, woodcock and other game birds, the plan contemplating a very realistic arrangement.

Among the attractions will be Boats, Launches, Canoes, Launch and Yacht Supplies, Guns, Rifles and Revolvers, Ammunition, Powder and Shot, Fishing Tackle, Sportsmen's Supplies, Golf Goods, Cameras, Tents, Cabins, Indian Goods, Game Animals, Birds, and Fish, Camp Outfits, together with guides, woodsmen and trappers. There will also be revolver and rifle competitions.

THE manufacturers of Machine and other Brushes are watching the situation in the far East with much interest, because of the effect which a possible war would have on the bristle market. The best quality of bristles comes from Siberia, and the possibility of a war involving Russia has the tendency to stiffen the market, though there has been no general increase in prices of Siberian bristles up to the present time. The Brush manufacturers remember the Chinese-Japanese war, when Chinese bristles, which are inferior in quality to the Siberian, doubled in price. No changes are reported in prices of Brushes.

SAMUEL WINSLOW SKATE MFG. COMPANY.

RECEIVERS have been appointed to temporarily conduct the affairs of the Samuel Winslow Skate Mfg. Company of Worcester, Mass. The circumstances that led up to this action grew out of complications connected wth the affairs of Winslow & Co., bankers, of Worcester, conducted by Col. Samuel E. Winslow, who is also president of the Skate company. The Skate company are in no way embarrassed, nor is there any difficulty in the management of the corporation. The action of the Superior Court in appointing the receiver is an entirely friendly one. Colonel Winslow's indorsement is on the notes of the Skate company, and in order to protect the interests of the company and their creditors, customers and stockholders it was deemed prudent to appoint receivers of the Skate company as well as of the banking house.

PRICE-LISTS, CIRCULARS, &c.

Manufacturers issuing new catalogues or price-lists are requested to send to THE IRON AGE *two copies—one for the Catalogue Department in the New York Office, and one for the Iron Age Library of Trade Literature in London.*

AMERICAN SCREW COMPANY, Providence, R. I.: Price-list of Wood and Machine Screws; Stove Bolts and Rods; Machine Screw Taps, Sink Bolts, Pointed Wires, Tire Bolts, Hand Rail Screws; Iron, Tinners', Block, Carriage, Coopers' and Hame Rivets, Burrs, Nuts, &c.

INDIANA MFG. COMPANY, Peru, Ind.: Catalogue devoted to illustrations, descriptions and prices of their line of North Star Refrigerators. These are made in a number of styles and sizes, both zinc and tile lined. A cheaper line of goods, the Indiana, is also represented in the closing pages of the catalogue.

THE UNITED STATES GRAPHITE COMPANY, Saginaw, Mich.: Catalogue devoted to Graphite Machinery Lubricants, Pipe Cement, Axle Grease, Foundry Facing, Paint, &c. The company's mines are at Sonora, Mexico.

THE NATIONAL WIRE CORPORATION, New Haven, Conn.: Special price-list and tables relating to Galvanized Telegraph and Telephone Wire and Wire Strand.

WETMORE GLUE TANK COMPANY, Toledo, Ohio; New York office, 146 Centre street: Circular describing and illustrating the Wetmore patent Glue Cooker. This is made in seven styles and sizes, suitable for use in factories or for individuals.

FRANK MOSSBERG COMPANY, Attleboro, Mass.: Illustrated price-list relating to Sterling, Diamond and Eagle Wrenches, and Mossberg Bicycle Bells.

J. I. CASE THRESHING MACHINE COMPANY, Racine, Wis.: "The Case Courier." This is an illustrated pamphlet of Wind, Straw and Combination Stackers; Horse Powers, Engines and Tenders, Water Tanks and Tank Pumps, Grain Handlers, Husker, Shredders, &c.

JULIUS SCHMIDT, Ludlow, Ky.: Catalogue No. 9, illustrating special Tinware, Galvanized Sheet Iron, Brass and Copper Ware for the use of railroads, factories, &c. These include Oilers, Torches, Oil Cans, Buckets, Water Cans, &c.

THE ACETYLENE GENERATOR & MFG. COMPANY, Wapakoneta, Ohio: Catalogue No. 4, relating to Acetylene Gas Generators and Appliances. The Abner Generator, which the company manufacture, is referred to as being entirely automatic, discharging its residue, taking in water and feeding carbide into the water, doing everything automatically, it is explained, except to charge the carbide magazine with carbide.

The Avery Stamping Company, Cleveland, Ohio, manufacture shovels, scoops and spades in hollow back and their new smooth back patterns in the following grades: Never-Break, National, Buckeye and Mohawk. Their first-grade goods are described as made from genuine crucible steel, containing 0.80 to 0.85 carbon, while the second-grade goods are made of the same material from 0.65 to 0.70 carbon. The style, finish and general appearance as well as the wearing qualities of these goods are referred to by the manufacturers.

MISCELLANEOUS NOTE.

Bay State Taps and Dies.

Smith & Hemenway Company, 296 Broadway, New York, have added to their line of hardware specialties the Bay State taps and dies, the entire product of which they market. The company refer to this line of tools as made of the finest steel, nicely finished, of excellent wearing quality and superior workmanship, particular attention being paid to the pitch of the thread. The United States V or Whitworth thread can be furnished in any style of tap or die. The taps and dies are sold under a rigid guarantee, and in the event of a defective tool it will be exchanged for a perfect one.

The Glen Steel Folding Mat.

Glen Mfg. Company, Ellwood City, Pa., are offering the steel folding mat, shown in the accompanying cuts. A 30-foot bar mat partly rolled is shown in Fig. 1, and a mat folded for shipping is illustrated in Fig. 2, emphasizing the fact that the mat may be folded or rolled. Folded up, it may be carried in stock as a part of shelf goods.

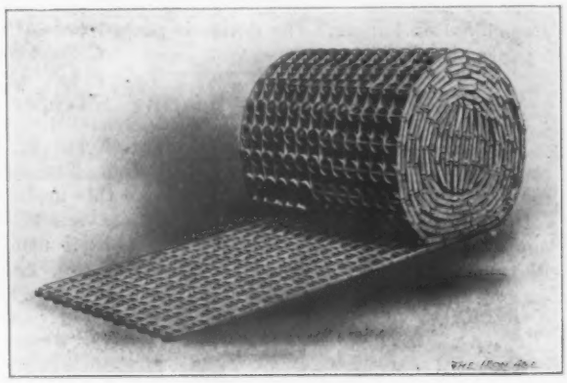


Fig. 1.—The Glen Steel Folding Mat.

Among the points of excellence, the following are mentioned: That the mat is flexible, that it does not mar tile, marble, wood or linoleum; that it is a perfect scraper, that it does not curl up at the corners, that it conforms to uneven surfaces, that it is easily cleaned, and that it is reversible, sanitary and durable. The mat is designed for use in residences, store entrances, vestibules, elevators, street cars, railroad coaches, office buildings, churches, schools and other public and private buildings; for soda fountains, bars and bar toilets, theaters, steamship and furnace rooms. The mat is made in eight regular sizes, from 15½ by 23½ to 35¾ by 72¾ inches. Special sizes are made to order.

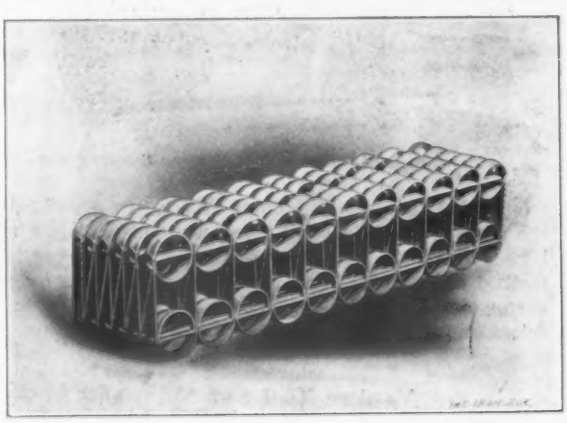


Fig. 2.—The Glen Mat Folded for Shipping.

Royal Adjustable Folding Garment Hanger.

Royal Mfg. Company, Concord, N. H., are placing on the market the garment hanger shown in the accompanying illustrations. It is made of nickel plated steel wire, and when extended its full length measures 18 inches,

Folded.

Open.

Royal Adjustable Folding Garment Hanger.

when folded 6½ inches, making it convenient for carrying, the weight being 4 ounces. The hanger combines adjustment and folding features, and the hook turns in either direction. A knurled thumb screw at the center allows the two parts to be rigidly fastened, either open or folded. One or more pairs of hanger clasps with cord attached may be looped over the corrugated ends or steel loops for attaching trousers or ladies' skirts, producing a combination hanger. The device is packed one each in a paper box.

National Queen Roller Bearing Sweeper.

The sweeper herewith illustrated is offered by the National Sweeper Company of Marion, Ind. The manufacturers have made every effort to make this model excel in beauty and finish, designing it with a view to holiday and gift trade. They state that the box is made of the choicest three-ply veneers—Hungarian ash, figured walnut, figured mahogany, curly birch and bird's-eye

National Queen Roller Bearing Sweeper.

maple, and that the trimmings are duplex plated, giving the parts not only a more permanent luster, but a much higher finish. Another new feature of the sweeper is the method of packing. Each sweeper is placed in a patented carton of special design. The carton is printed in five colors and makes a striking display.

Yankee Tool Set No. 100.

In response to frequent demands for the Yankee screw drivers, put up in substantial and well finished boxes, to be used by mechanics who desire to keep tools in good condition, and by gentlemen or amateur mechanics who especially appreciate tools put up in sets, North Bros. Mfg. Company, Philadelphia, Pa., have prepared the set illustrated herewith. The box, which is substantially made of oak, well finished, contains one each of the following Yankee tools: No. 30 spiral ratchet screw driver; chuck, with drill points, eight sizes, 1-16 to 11-64 inches, to use for drilling holes with the spiral ratchet screw driver; countersink to use in the same tool; No. 11 ratchet screw driver, with blade 6 inches long, and No. 15 ratchet screw driver, with finger turn-on blade, blade 3 inches long. These are the styles and sizes of Yankee tools most in demand, and the combination is

Yankee Tool Set No. 100.

referred to as covering all the usual requirements in tools for driving and drawing screws. The wood box is packed in an attractive paper box, weighing 3½ pounds per set. The box measures 12½ x 4¾ x 2¾.

The Reese R. F. D. Mail Box.

The mail box shown in the accompanying illustrations is manufactured by Reese & Brothers, Rolling Prairie, Ind. The mail box is made of No. 22 galvanized sheet steel, circular in form, contributing to its strength and durability. A coat of aluminum paint also adds to its

Fig. 1.—The Reese R. F. D. Mail Box.

durability, as well as giving it an attractive appearance. A bracket made of heavy galvanized band steel is used to support the box, being attached to its under part by a circular band of the same material. The opening is at the top, a feature which the manufacturers claim as making it more safe and convenient than mail boxes which open at the side or end. The lid, projecting over the top, renders it storm proof and permits the insertion of letters by a heavily gloved or mittened hand. The boxes

Fig. 2.—The Reese Mail Box Open.

are furnished with or without signal or lock, as desired. Each lock is furnished with two keys, which are referred to as the only keys that will unlock it, except the master key carried by the route agent. The box measures 6 inches in diameter and 18 inches in length, inside measurement, and complies in all other particulars, the manufacturers claim, with the requirements of the Postmaster-General, by whom they say it has been approved.